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ABSTRACT

The public school system of Montgomery County, Maryland, established a database of more than 1,800 volunteer business and community resources in the areas of science and mathematics who are willing to share their expertise with students and teachers in 154 county schools. Through a grant, a monthly newsletter that highlights this sharing is published. More than 7,500 copies are distributed each month to teachers, school administrators, and career specialists. Newsletter articles about teachers' use of business and community experts as speakers in the classroom or mentors for students make all teachers aware of the resources available. Specific objectives that teachers are required to teach in science and mathematics are identified and applicable resources are listed. Special attention is paid to use of minority role models whenever possible. Alternative careers for women in science and mathematics are emphasized as well. The newsletter editor acts as a community resource and links teachers and businesses. Through the newsletter, the resource bank encourages teachers and students to look outside the classroom and encourages the business community to become involved in its schools. Documents used in the project comprise a large portion of this report. These include brochures, forms, correspondence, media articles, and two volumes of the newsletter. (Author/KC)

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Final Report

"...OF INTEREST"

Connection Resource Bank Newsletter

Informing school system staff members about a school - community - business cooperative project

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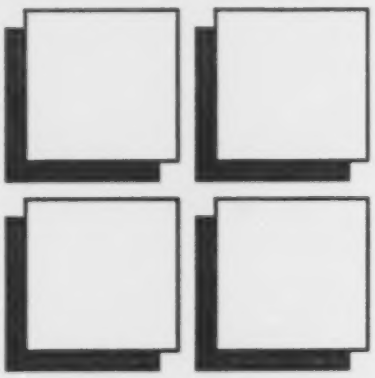

Funded through an Excellence in Education Award to Paint Branch High School Montgomery County, Maryland

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September 1988

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An Excellence in Education award
to Paint Branch High School

Montgomery County Public Schools
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September 1988

Abstract for Grant #ERI-G-86-0108

This project documents the establishment and maintenance of a connection and mutual exchange of resources between the business community and the school system of a large suburban county.

The public school system of Montgomery County, Maryland, with help from its education foundation, the Montgomery Education Connection, Inc., has established a data base of more than 1,800 volunteer business and community resources in the areas of science and mathematics who are willing to share their expertise with students and teachers in its 154 schools.

Through this grant, a monthly newsletter that highlights this sharing is being published. More than 7,500 copies are distributed each month to teachers, school administrators and career specialists. Newsletter articles about teachers' use of business and community experts as speakers in the classroom or mentors for students make all teachers aware of the resources available. Specific objectives that teachers are required to teach in science and mathematics are identified and applicable resources are listed.

Special attention is paid to use of minority role models whenever possible. Alternative careers for women in science and mathematics are emphasized as well.

The newsletter editor acts as a community resource specialist and is responsible for helping increase the resources in the data base as it is expanded to cover more areas of the curriculum. She also works closely with teachers, helping them get the most from available resources.

Through the newsletter, the Bank encourages teachers and students to look outside of the classroom and encourages the business community to become involved in its schools.

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Volume 1 of "Of Interest"

Volume 2 of "Of Interest"

Acknowledgments

The editor wishes to thank the many groups and individuals who made this project successful. Sally Keeler, school community/business relations coordinator, applied for and managed the grant thus making the project possible. Her editing skills were much appreciated. William Henry, former director of information for Montgomery County Public Schools, provided generous and kindly instruction, encouragement and support, as well as excellent editing. Judith Messitte, Connection Resource Bank coordinator provided the information that sustained the newsletter and the comraderie that sustained the editor. To Nancy Biggin, Resource Bank secretary, many thanks for assuming the additional burdens of the editor's telephone. Sally Jackson, director of volunteer services for the school system, provided office space, a telephone and the use of a computer that were vital to the project's viability. To the graphics department of Montgomery County schools for the time of William Mills, project photographer, Pat Oland, phototypsetting supervisor, Lisa Connor, project typesetter, Wayne Thompson, project graphics designer, the editor extends thanks and appreciation. To John Stephanos, supervisor of publications services, many thanks for overseeing the printing of "Of Interest." The editor also wishes to thank the unknown printers who prepared the photographs, inked the presses and printed the newsletter. And finally, to Wayne Harris, supervisor of the mail room, many thanks for the work done by the mail room staff.

INTRODUCTION

How can business communities and school systems interact to the benefit of both?

This document is a step-by-step non-technical explanation of how to establish and maintain a connection between the business community and the school system of a large suburban county.

The mechanism for this relationship is composed of two interrelated parts. The first part is the Connection Resource Bank, a computerized data base of more than 1,800 experts in science and mathematics from the business community, who have volunteered to visit schools and share what they know with teachers and students. The second part is "Of Interest," a newsletter funded by this grant, published by the school system and distributed to all 7,000 teachers monthly to let them know the programs the Bank is providing to enrich and expand the curriculum.

What is the Connection Resource Bank?

A group of high-level business executives in the county established a broad-based foundation in 1984 to stimulate involvement of business and other community members in enhancing the counties educational program. The foundation's first project was establishing a computerized bank of resources to enrich the secondary math and science curricula. A computerized data base of volunteer experts was established to accomplish this goal.

Software to manage the data base was developed by businesses working closely with school system curriculum coordinators and school resource teachers. The data base grew from 300 resources to more than 1,800 in two years.

How can teachers use the Resource Bank?

Teachers can use the data base by telephoning the bank coordinator and communicating a need. "I need a mentor to help a student study how the salinity of water affects the reproduction of crustacea." "I'd like a paramedic to speak to the class about emergency medicine on January 21 at 1:15." The coordinator

accesses the data base, finds and contacts the appropriate resource, and arranges for the program or mentoring to take place on the date and at the time the teacher requested.

Letters of confirmation are sent by the coordinator to both teacher and resource, including phone numbers so the two may speak further. A letter of confirmation is sent to the teacher, along with a speaker evaluation form to be returned to the coordinator.

How does a monthly newsletter enhance this process?

The board of education in Montgomery County has mandated an intense effort to improve student achievement, and the schools have a commitment to improve math and science education. The community is rich in high technology resources relevant to the curriculum. Research indicated that many community resource banks did not achieve their potential benefits. Teachers did not use them as expected. Many volunteers who had offered services, were not contacted and consequently believed the schools didn't want or need their services.

The Connection Resource Bank provides a catalog of resources, and the newsletter provides the communications link to help them get into the classroom. The newsletter increases interest in programs through feature stories and recognizes teachers' use of community resources through articles on Teachers of the Month.

STAFF, STAFF DUTIES AND FUNDING

In order to satisfy the requirements and meet the goals of this grant, the editor worked closely with the project manager and the resource bank coordinator. She also was advised by the director of information for the school system and attended meetings of the board of directors of the Montgomery Education Connection.

The following information briefly identifies the responsibilities of key personnel involved in the production of the newsletter and describes the funding and in-kind services that supported the project.

1. <u>The project manager</u> coordinated and managed the contributions of the grant, school system and community and supervised the newsletter editor.

The responsibilities for this position were assumed by the school/business relations coordinator whose time was part of the in-kind resources provided by the school system.

2. <u>The resource bank coordinator</u> who manages the data base, worked with the editor to select and schedule programs to appear in the newsletter.

Initially, this part-time position was funded by the school system and supported by both the grant and the Connection. As the volume of requests to the Bank increased, the position was made full-time and was fully funded by the school system.

3. <u>The newsletter editor</u> worked closely with the bank coordinator, attended selected programs, produced a monthly publication informing teachers about the resources available, oversaw distribution of the newsletter, visited schools to speak with teacher specialists and supported the bank coordinator by creating a series of letters and forms used in Bank correspondence.

This position was full-time during the first year of the grant and was funded by the grant and supported by the school system and the Connection. Initial developmental time was spent establishing a format for the newsletter. The editor worked fewer hours during the second year as developmental time was not necessary.

This position was funded and supplied as follows:

An Excellence in Education Award from the U.S. Department of Education provided the editor's salary and part of the bank coordinator's salary, a printer for the high school to be used by the editor and the project's first year of supplies.

The Montgomery County Public School System provided project supervision, consultation services of the Paint Branch principal, career coordinator and career specialist, editing services, a computer, a telephone, office space and furniture, second year supplies, typesetting, graphics, photographic, printing and distribution services.

The Montgomery Education Connection contributed $1,000 to the support of the newsletter. Individual Connection members provided in-kind services for the design and printing of the two color newsletter flag.

GOALS

The goals of the project as stated in the grant are:

1. To use non-school personnel to complement teaching in math and science.

2. To keep teachers at pilot schools (Paint Branch and Wootton) apprised of math and science resources available.

3. To increase the involvement of parents in improving the quality of elementary and secondary education by encouraging them to share their business expertise.

4. To highlight new speakers, consultants and mentors relevant to current month's math or science curriculum.

5. To communicate regularly with the community articulating school needs which the community can provide.

6. To address the critical time factor involved in resource use by keeping teachers' search time for resources minimal.

7. To reduce teachers' uncertainty about using the unknown by communicating regularly and instructing personally in Bank use.

8. To emphasize non-traditional roles for women.

9. To emphasize minority role models whenever possible.

10. To develop a model of resource use that can be implemented elsewhere in the country.

11. To benefit at least 3,000 persons for the duration of the grant.

STATEMENT OF ADDITIONAL GOALS

The following goals were set by the editor:

1. To reach teachers beyond the pilot schools and make resources available to all teachers.

2. To seek input from teachers and teacher specialists concerning their needs.

3. To inform all school administrators about the Resource Bank.

4. To develop forms and form letters necessary to enhance the Resource Bank operation.

5. To facilitate the awards offered by the Montgomery Education Connection to teachers who demonstrate outstanding use of community resources.

6. To increase the resources in the data base by approaching the scientific community as well as the business community.

7. To advertise the existence of the Resource Bank to all school system personnel by as many means as possible.

PROJECT EVALUATION

The editor has continued to pursue the 11 goals of the project as stated in the grant and the seven additional goals.

The following is a final assessment of success in meeting the goals of the grant.

1. **To use non-school personnel to complement teaching in math and science.**

   Volunteer resource people invited to visit classes and work with students in the areas of math and science totaled 1,158 for the duration of the grant. (See Attachment #1 for charts showing the number of requests filled by volunteers during the two years of the grant period.)

2. **To keep teachers at pilot schools (Paint Branch and Wootton) apprised of math and science resources available.**

   Teachers at the pilot schools received the newsletter "Of Interest" monthly. In addition, the editor met with science and math teachers at Paint Branch at their departmental meetings and invited each teacher, by individual letter, (See Attachment #2) to make an appointment (at his/her convenience) for a brief demonstration of how to use the Resource Bank data base. The IBM computer dedicated to the Bank was available in the career center for teacher use at any time during the work day. A bulletin board dedicated to the Resource Bank was created and maintained by the editor in the career center and included every edition of the newsletter and information about what the Bank offered teachers and students. (See Attachment #3 for photograph of Resource Bank computer and bulletin board on location at Paint Branch and members of the supporting business community.)

3. **To increase the involvement of parents in improving the quality of elementary and secondary education by encouraging them to share their business expertise.**

   Parent business and professional expertise was constantly tapped by the Resource Bank and recruited by the bank coordinator and newsletter editor as the data base grew to its present volume of 1,800 resources. Many of these experts are

parents of students in Montgomery County Public Schools.

4. **To highlight new speakers, consultants and mentors relevant to current month's math or science curriculum.**

Monthly articles highlighted several resources in "Of Interest." For several issues a "Hot Spot" column also was published. To write this column, the editor met with the heads of the elementary and secondary science curricula for Montgomery County and asked them to select specific objectives that teachers would be required to teach during the following month. For example, they selected "soil" and "nuclear radiation" as topics that would be taught. The editor then extracted from the Bank all resources pertaining to those subjects (3 resources on soil and 12 on nuclear radiation), phoned each of them to assure that they would be available and receptive to inquiries within the next month, and published their availability and expertise in the "Hot Spot" column. (See Attachment #4 for copies of "Hot Spot" column.)

As Bank use expanded, teachers' requests were "bunched" in areas of current need. When many requests for experts in pollution were received by the Bank, the editor selected a program in that area to highlight.

5. **To communicate regularly with the community articulating school needs that the community can provide.**

The business community and the school system collaborated on the production of "Of Interest." In consultation with the editor, and project manager, a member of the Montgomery Education Connection volunteered to design of the logo for the newsletter. The first year of the grant, the two color flag for the newsletter was printed by the school system. The second year of the grant, the flag was printed by a member of the Montgomery Education Connection as a contribution of services worth $900.

In addition to informing local chambers of commerce about the opportunities the Resource Bank offered and reaching out to the business community through the Montgomery Education Connection, the Bank coordinator and newsletter editor created forms to recruit new resources (See Attachment #5) and distributed those forms wherever an opportunity presented itself. An exhibit at the annual Montgomery Area Science Fair, exposed hundreds of expert judges as well as involved parents to the services the Resource Bank can provide.

The editor recruited new resources for the Bank. (See Attachment #6 for copy of letter and newsletter request to teachers.)

The editor regularly informed the media of the services of the Resource Bank. Several times, resources people who had presented programs covered in "Of Interest," asked for permission to reproduce the article in their company's newsletter. (See Attachment #7 for media articles written about the Bank.) The editor also aided in the preparation of articles about the Resource Bank that appeared in other school system publications. "The Bulletin" is a weekly newsletter distributed to all school system employees. "Schoolbeat" is sent to the leadership of community organizations (chambers of commerce, businesses, state and local governments). (See Attachment #8 for "Bulletin" and "Schoolbeat" articles about the Bank.)

The editor informed parents of children in the school system about the Resource Bank by sending an article about the Bank to PTA newsletter editors for inclusion in the regular PTA newsletter of their schools. (See Attachment #9 for article to PTA newsletter editors.)

The editor sent monthly copies of "Of Interest" to each of the 44 members of the Montgomery Education Connection. Periodically, individually addressed cover letters were included to thank each business for its contribution and to let each know about the growth and needs of the Bank. (See Attachment #10 for letters to Connection Members.)

The editor kept the superintendent of Montgomery County Public Schools, as well as the board of education, the county council and the county executive apprised of the growing partnership between the school system and the business and scientific communities through regular receipt of "Of Interest." (See Attachment #11 for letter to county executive's office.)

A brochure for use in recruiting business participation was written by school system staff for distribution through the local chambers of commerce. (See Attachment #12 .)

6. **To address the critical time factor involved in resource use.**

Teachers were able to make a single phone call to request a speaker, demonstration, mentors, field trip or other resource. Because the process is handled in the Resource Bank office, the

appropriate person or resource was located with no further effort by the teacher.

The newsletter gave information about specific speakers and also stimulated ideas about other resources that teachers could use, shortening the time they needed for research.

7. **To reduce teachers' uncertainty about using the unknown.**

The newsletter editor met with groups of teachers and specialists from throughout Montgomery County to explain the opportunities offered by the Resource Bank. Teachers' groups included specialists in science and mathematics at both the elementary and secondary levels, teachers of the gifted, teachers of potentially gifted disadvantaged minorities and special education teachers. An information packet was assembled by the editor that included copies of the newsletters, instructions to teachers on Bank use, forms to familiarize them with the procedure of requesting resources, examples of resource computer printouts and lists of successful "connections" made by the Bank. (See Attachment #13 for sample information packet.) This packet was distributed each time the editor met with teachers' groups and has been enthusiastically received and requested.

8. **To emphasize non-traditional roles for women.**

In May, 1987, the Resource Bank provided panelists to speak at a series of three conferences on sex equity initiatives presented for educators. Each secondary school was requested to send: a mathematics teacher, a science teacher, a computer science teacher, an administrator, a counselor, a media specialist, a career technician where applicable, two students and two parents. The primary objective of the conferences was to develop further awareness of the current status of the sex equity initiatives. Panelists included females in math, science, computer science, college admissions officers, job placement personnel, college students and Montgomery County public school graduates. The newsletter, "Of Interest," featured these conferences in the first issue of the 1987-88 school year (See "Of Interest," October, 1987, Volume 2, Number 1).

9. **To emphasize minority role models whenever possible.**

In April, 1987, the Resource Bank provided speakers for a "Middle Start" program for 20 minority sixth graders who were identified as having potential to move into the gifted program.

Three speakers, two of whom are minorities, addressed these students; a white male physicist was joined by a black female biologist and an Hispanic male technical writer. The Bank is in the process of identifying resources by minority and sex. Such identification will permit teachers to match the needs of specific students with available resources. The editor made every effort to highlight minority and female role models in "Of Interest" when they acted as resources for the school system.

In a continuing effort to increase the minority representation among volunteers in the data base, the editor made contact with black, Hispanic and Asian organizations to explain how the Resource Bank and "Of Interest" allow the school system to provide minority role models for its students and teachers. At presentations to school staffs, the editor emphasized that minority and handicapped speakers and mentors can be requested and will be provided whenever possible.

10. **To develop a model that can be implemented elsewhere in the country.**

This final report documents the process of advertising to teachers volunteer community resources that are available in specific educational areas through a monthly newsletter.

Interest in the newsletter and Resource Bank has extended beyond Montgomery County, Maryland. In March, 1988, at a state conference in Baltimore, "Volunteer Partnerships - Preparing for the 21st Century," the bank coordinator and "Of Interest" editor presented a session on the Bank and newsletter to educators from all over the state (See Attachment #14 for program notes.) Interest was high, and educators from Baltimore, Maryland, and Washington, D.C., have visited to observe the Bank operation.

At the National School Volunteer Program (NSVP) Annual Conference, the Resource Bank (and by extension, "Of Interest") was recognized as this year's Tupperware Apple Tree Award winner for exceptional school volunteer programs. (See "Of Interest," March, 1988, Volume 2, Number 5.)

The Connection Resource Bank was featured by Maryland Public Television and the Maryland State Department of Education on "Project Reach Out," a three hour live telethon designed to recruit volunteers and community resources for the public schools. It was broadcast on the stations of Maryland Public TV and partially simulcast on WJZ-TV, Channel 13, Baltimore, on

Tuesday, September 13, 1988, from 8:00 - 11:00 p.m. (10:00 - 11:00 p.m. on WJZ-TV). In preparation for this program, TV crews filmed Resource Bank speakers and interviewed and filmed the bank coordinator and editor.

11. **To benefit at least 3,000 persons for the duration of the grant.**

Records indicate that more than 10 times as many, or 31,391 students have benefited from use of the Bank during the two years of the grant period. (See Attachment #15 for charts.)

"Of Interest" is responsible for much of the increased use. The numbers of calls for resources increases geometrically during the week following distribution of each issue.

Assessment of Additional Goals

The following is a final assessment of success in meeting the seven additional goals set by the editor.

1. **To reach teachers beyond the pilot schools and make resources available to all Montgomery County teachers.**

By distributing "Of Interest" monthly to every teacher in Montgomery County Public Schools, and by meeting personally with all the secondary and elementary resource specialists in math and science, the editor has expanded the user base beyond the requirements of the grant. (See Attachment #16 for copies of correspondence from administrators, specialists and students.)

2. **To seek input from teachers and teacher specialists concerning their needs.**

The editor visited schools throughout the county and met with individual teachers and teacher specialists requesting feedback and suggestions about improving "Of Interest" and encouraging use of the Bank. (See Attachment #17 for copy of letter to area science specialist.) The editor responded to mathematics teachers requests to seek resources emphasizing the practical use of mathematics in everyday life and demonstrating the importance of using the metric system by providing computer printouts of such resources to requesting teachers. Teachers were directed to scientists and business resources who use metrics in their work and can justify the importance of learning

the metric system.

3. **To inform school administrators about the Resource Bank.**

   School administrators received "Of Interest" and also were informed about the Resource Bank and the opportunities it offered through the Management Memo. (See Attachment #18 for copy of memo.) Administrative support enhanced Bank use. At the beginning of the year, notices were placed on every packet of newsletters delivered to schools instructing that the newsletter be placed in each teacher's mailbox. (See Attachment #19 for copy of memo.)

4. **To develop forms and form letters necessary to carry out the program.**

   The editor created forms to track use, confirm bookings, thank resources and evaluate speakers. (See Attachment #20 for copies of forms.)

5. **To facilitate awards offered by the Montgomery Education Connection to teachers who demonstrate outstanding use of community resources.**

   "Of Interest" was used as a vehicle to advertise an award offered by the Montgomery Education Connection to teachers who demonstrated outstanding use of community resources. The newsletter highlighted an explanation of the award and the nomination process. Award recipients were the subject of newsletter articles each month beginning in February. (See Attachment #21 for copies of articles, a letter and a news release regarding the "Teacher of the Month" award.)

6. **To increase the resources in the data base by approaching the scientific community as well as the business community.**

   The editor spent a day at the Montgomery Area Science Fair distributing "Of Interest" and resource registration forms to judges and parents who were interested in promoting science and mathematics among area students.

   The editor continued to seek new resources for the Bank (See Attachment #22 for copy of letter recruiting a resource.) On occasion, the editor acted as a resource, conducting mock job interviews with students at a vocational high school to help prepare them for careers in the business and scientific communities. (See Attachment #23.)

7. **To advertise the existence of the Resource Bank to all school system personnel by as many exposures as possible.**

At the offices of the Montgomery County Board of Education, the editor developed a 24 foot long bulletin board explaining the Resource Bank and displaying each issue of the newsletter to maximize school system exposure to the volunteer resource bank concept. (See Attachment #24 for photograph of bulletin board.)

SCHEDULE FOR PRODUCTION AND DISTRIBUTION OF NEWSLETTER

The purpose of the newsletter is to produce a monthly publication, October through May, to be distributed to all school system teachers and administrators, that will make them aware of the volunteer resources in science and mathematics available to them through the Connection Resource Bank.

I. Responsibilities of the funding and supporting institutions:

A. Decide to produce a newsletter to inform teachers about the Resource Bank
B. Hire a newsletter editor
   1. Provide editor with office, furniture, telephone, supplies, computer, printer, appropriate word processing software and travel allowance
   2. Locate the editor in close proximity to the bank coordinator so that the function of the bank becomes familiar and planning decisions about programs to be covered in the newsletter can be made jointly
C. Secure editing, photographic, typesetting, graphic, printing and distribution services

II. Process for production of the newsletter: (graphics and format)

A. Select a name for the newsletter
B. Select colors for the publication
   1. Color of paper
   2. Color(s) of ink
C. Decide on format (single fold, bi-fold, tri-fold)
D. Decide on binding (stapled, glued)
E. Select paper
   1. Color
   2. Size
   3. Weight
F. Design a "flag" for the newsletter (a flag is the heading at the top of the first page that can be printed monthly or pre-printed for the entire year)
   1. Information in flag
      a. Name of newsletter
      b. Statement of intended reader
   2. Graphics for flag
      a. "Typeface" (style of printing)
      b. Size

c. Color
d. Design of flag and "logo" (graphic symbol associated with the project)

G. Design a "masthead" for the newsletter (a masthead is a box that appears regularly in the same location indicating publication information)
   1. Information in the masthead
      a. Names of persons responsible for contents
      b. Name of publishing institution
      c. Statement of how often publication will appear
      d. Statement of how publication is funded
      e. Statement of intended audience
      f. Address and phone number of publication
   2. Graphics for masthead
      a. Logo
      b. Typeface
      c. Size
      d. Color
      e. Design

H. Write and design a disclaimer statement (depending upon the funding institution: see box on last page of "Of Interest")

I. Make "lay-out" decisions for newsletter (what it will look like)
   1. Typeface of "body copy" (style of printing for the text) - Century
   2. "Point" size (size of printing for the text) - 9 1/2
   3. Leading (amount of space between lines of print) - 11
   4. Number of columns per page - 3
   5. Number of "picas" per column (width of columns are measured in increments called picas) - 14
   6. "Folio" choices (information to be included and/or changed monthly) as to typeface and point size
      a. Number and volume of each issue
      b. Page numbers (bottom or top of each page)
      c. Name of newsletter (appearing next to page number)
      d. Dateline (month and year of issue, appearing next to page number)
      e. Masthead and school system address
      f. Listing of "continued on page...," and "continued from page..."

J. Create "paste-up" sheets (these are pre-ruled sheets of paper indicating where typeset information is to be pasted - See Attachment #25)

K. Create forms for tracking production process (See Attachment #26)

III. Process for production of newsletter: (content)

A. Meet with resource bank coordinator as needed to become familiar with program bookings

B. Select three bookings each month about which to write articles
   1. Get names and work phone numbers of requesting teachers
   2. Get dates, times and places of program
   3. Get work or home addresses and phone numbers of the resources

C. Provide balanced representation
   1. Of primary and secondary schools in all three school administrative areas
   2. Of sexes
   3. Of races or ethnic groups

D. Submit a production schedule to all participants so deadlines can be met (See Attachment #27)

E. Call teachers for confirmation of program dates and to receive permission to cover the programs

F. Schedule photographer to cover stories

G. Travel to schools, take notes on presentations and coordinate photo coverage with photographer

H. Write stories, save on hard disk and print out copies

I. Send copies of articles to resources with requests that they check for accuracy and call immediately with any corrections

J. Submit stories for final editing to director of information

K. Select photographs from "contact sheets" (small duplications of every photograph the photographer shot) to be enlarged

L. Correct edited copy on disk and print out hard (paper) copies

M. Collect photographs that have been enlarged

N. Submit disk and hard copies to typesetting by filling out requisition specifying
   1. Typeface (Century) 9 1/2 point on 11 leading
   2. Column size (14 picas)
   3. Number of copies to be printed (7,500)

O. Proofread photocopies of galleys (printed columns of typeset material)

P. "Wax" photocopies of galleys (run photocopies through a special waxing machine so that they will adhere to paste-up sheets)

Q. Plan layout on paste-up sheets leaving room for
   1. Headlines

2. Cutlines (text under photographs)
3. Photographs

R. Write headlines and cutlines to fit into layout
1. Headline typesize will vary
2. Cutlines set in 8 point type on 10 leading in boldface Century

S. Have headlines and cutlines edited and proofread

T. Have headlines and cutlines typeset

U. Wax photocopies of typeset headlines and cutlines

V. Paste-up headlines, cutlines, and folio material

W. Prepare photographs to fit paste-up
1. Mark each photo using grease pencil to show cropping
2. Number each photo in grease pencil according to its page and position on the page (e.g. 1A, 1B, 2A, etc.)
3. Number each space left on the paste-up to match its photo

X. Photocopy and proofread paste-up a final time

Y. Submit paste-up and cropped photographs to graphic artist for final layout using typeset galleys

Z. Photocopy artist's final layout

AA. Proofread final layout and submit it for final proofing

BB. Submit final corrections for graphic artist to add

CC. Send completed newsletter to print shop

DD. Request print shop send completed newsletter to mail room

EE. Request mail room distribute newsletter throughout school system

FF. Request extra copies of newsletter be sent to editor for public relations use

GG. Send five copies of newsletter to each resource in issue attaching business card noting appreciation

• HH. Send two copies to each member of the Montgomery Education Connection

IV. Process for distribution of newsletter

A. Communicate regularly with school system mail coordinator

B. Collect newsletters not distributed to school staff for use in public relations

CONCLUSIONS AND RECOMMENDATIONS

The "Of Interest" newsletter project has been a highly successful method of informing school administrators, teachers and career specialists about the expert resources available to them from the business and scientific communities listed in the Resource Bank data base and publicly recognizing the contributions of these volunteers.

In partnership with the Resource Bank, the newsletter has fostered a symbiotic relationship between the school, business and scientific communities that allows each to meet many needs. Students and teachers have received invaluable expert information. The business and scientific communities have had the opportunity to interface with the institution that is preparing their future employees. In addition, since each resource is a volunteer, most speakers enjoy their jobs and serve as role models for students who are in the process of making future career decisions.

School Comments

Following each monthly distribution of "Of Interest," the resource bank coordinator was flooded with requests for programs and speakers. She compiled monthly reports on the use of the Bank that included such information as the number of requests received, the number of requests filled, the number of children served and the kinds of resources booked (speaker, field trip, mentor, etc.). The editor compiled several charts and graphs to track and compare yearly Bank use (see Attachment #1).

Teachers using the Bank were requested to complete a check list evaluating each resource for return to the Bank. Evaluations indicated that the vast majority of programs were grade appropriate and outstanding. Whenever possible, positive teacher comments about programs were included in "Of Interest."

The school system has indicated its satisfaction with the newsletter project by continuing its in-kind services involving the editing, typesetting, graphics, photographic, printing and distribution services after the expiration of the grant.

Community Comments

The resource bank coordinator and newsletter editor attended meetings of the board of directors of the Montgomery Education Connection, the business foundation that has supported both projects. Feedback from this group indicated that they were delighted to have the opportunity to share their employees' expertise with students and teachers. The number of projects they are planning that will support the educational programs of the school system is expanding. They have indicated their satisfaction with the newsletter project by employing the present editor (beginning at the end of the grant funding) to continue writing and producing "Of Interest."

Impact of the Project

The grant required that the project benefit at least 3,000 persons. Records indicate that the Resource Bank and newsletter project (to date) has allowed 31,391 students to be served. Figures show an increase of 77.3 percent in the number of students served in 1987-88 compared to the previous year.

Project Strengths

1. Strengthened school-community ties.
2. Recognized community contributions publicly.
3. Was distributed to administrators as well as teachers. (It was brought to the editor's attention that in several cases school principals had instructed their staff to make use of these resources after seeing articles in the newsletter.)
4. Provided exposure within the school system to insure that all geographic areas of the system had equal access to information about the Resource Bank.
5. Allowed teachers to learn of resources and provide unique opportunities for students to receive expert information, take part in significant hands-on experiences and see excellent role models.
6. Allowed minority and female role models to be highlighted whenever possible and advertised to teachers that specific minority and female resources could be requested.
7. Was a highly visible public relations vehicle for the school system that was sent to each member of the Education Connection monthly along with periodic correspondence from the editor to make each

aware that contributions were appreciated.

8. Encouraged the presenting resources appearing in the newsletter, many of whom were parents of Montgomery County school students, to share their skills and enlarge the data base by referring colleagues as resources.
9. Increased use of the Bank to the extent that the Board of Education changed the bank coordinator's position from part time to a full time position beginning in the 1988-89 fiscal year.
10. Involved high level executives in the business and scientific communities (members of the Montgomery Education Connection) in positive interaction with the school system.

Project Weaknesses

1. Lack of adequate expanded supporting services for the bank coordinator as the requests increased with each publication of the newsletter. Additional secretarial help became vital as word of the Resource Bank spread. The Connection agreed to support an additional two hours a day of secretarial services (making a total of four hours daily). However, the volume of correspondence and record keeping required a full time employee.
2. Necessity of lobbying for support so that the Resource Bank and newsletter did not "die of success."
3. Lack of consistent distribution of the newsletters by the school secretaries who received the packet each month for placement in teachers' mailboxes.
4. Reluctance of some teachers to read all the material placed in their mailboxes.

Recommendations

1. The editor spend more time visiting individual schools and speaking at staff meetings to explain the bank and the newsletter so that teachers will recognize the publication when they receive it monthly.
2. The editor devote more time to meeting with school administrators and specialists including career coordinators to encourage bank use.
3. The editor spend more time within the community recruiting additional resources from business, scientific and minority populations.
4. The editor devise a method that will assure consistent distribution of the newsletter once it reaches the school secretaries.

Conclusion

The newsletter, "Of Interest," has been a very successful part of the Resource Bank concept. It should continue publication as long as the Bank is functioning.

Next year, as an employee of the Montgomery Education Connection, the editor looks forward to sharing with the school system an expanded look at the contributions of the business and scientific communities. A project undertaken by the Connection that encourages student understanding of and investment in the business world is well under way. Another project to help students prepare for the etiquette and personal requirements of the workplace has begun. A job bank is functioning to help new teachers under contract who need employment during the summer before starting their work with the school system.

This school-community partnership is thriving. The newsletter, "Of Interest," has been instrumental in nurturing this relationship. The romance between the business community and Montgomery County Public Schools has gone beyond courtship and into marriage.

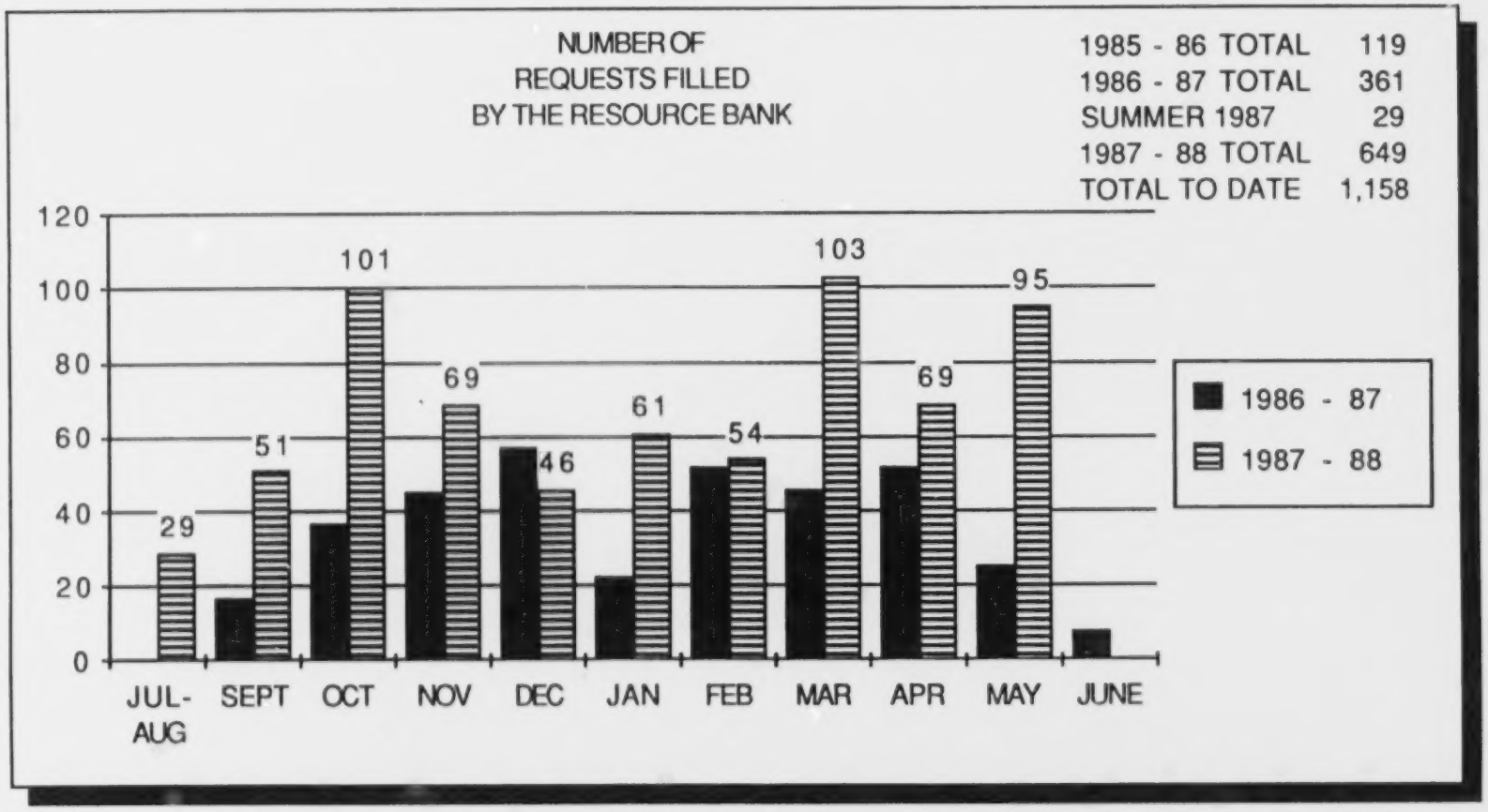
PROJECT ATTACHMENTS

1. Charts showing monthly requests for volunteers filled by the Resource Bank
2. Teacher invitation to Resource Bank demonstration
3. Photographs of pilot school's bulletin board and Montgomery Education Connection members
4. "Hot Spot" columns
5. Forms to recruit new resources
6. Requests for new resources
7. Media articles written about the Resource Bank
8. Montgomery County Public School articles about the Resource Bank
9. Article to PTA newsletter editors
10. Letters to Montgomery Education members
11. Letter to county executive's office
12. Business recruiting brochure
13. Resource Bank information packet
14. Maryland School Volunteer Program conference notes about the Resource Bank presentation
15. Charts showing number of children served monthly by the Resource Bank
16. Sample correspondence received from administrators, specialists and students
17. Sample of editor's correspondence with specialists
18. Montgomery County Public School's memo to administrators regarding "Of Interest"
19. Memo to schools regarding distribution of "Of Interest"
20. Resource Bank forms and letters
21. "Teacher of the Month" articles and correspondence
22. Sample letter recruiting resources
23. Letter thanking editor for acting as a resource
24. Photograph of bulletin board at the Board of Education
25. Paste-up sheets for "Of Interest"
26. Tracking forms for "Of Interest" copy
27. Monthly production schedule for "Of Interest"

23

PROJECT ATTACHMENT NUMBER 1

Charts showing requests for volunteers filled monthly by the Resource Bank.


NUMBER OF
REQUESTS FILLED
BY THE RESOURCE BANK
1985 - 86 TOTAL 119
1986 - 87 TOTAL 361
SUMMER 1987 29
1987 - 88 TOTAL 649
TOTAL TO DATE 1,158
120
100
80
60
40
20
0
29
51
101
69
46
61
54
103
69
95
JUL-AUG
SEPT
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUNE
1986 - 87
1987 - 88

NUMBER OF REQUESTS FILLED

	1986 - 87	1987 - 88	% INCREASE
SEPT	17	51	200.0
OCT	37	101	173.0
NOV	45	69	53.3
DEC	57	46	-19.3
JAN	22	61	177.3
FEB	52	54	3.8
MAR	46	103	123.9
APR	52	69	32.7
MAY	25	95	280.0
JUNE	8		
TOTALS	361	649	

PROJECT ATTACHMENT NUMBER 2

Teacher invitation to Resource Bank demonstration.

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850

Telephone: (301)

Now that the Connection Resource Bank is open for business at Paint Branch, may I make an appointment with you during one of your free periods this week to give you a 15-minute demonstration on how to access the resources in the computer data base in science or math?

I will be in the career center Tuesday, February 10, from 7:30 -2:00. Please drop by for a demonstration or to make an appointment for a more convenient time.

Judy Kramer

PROJECT ATTACHMENT NUMBER 3

Photographs of pilot school's bulletin board and Montgomery Education Connection members.

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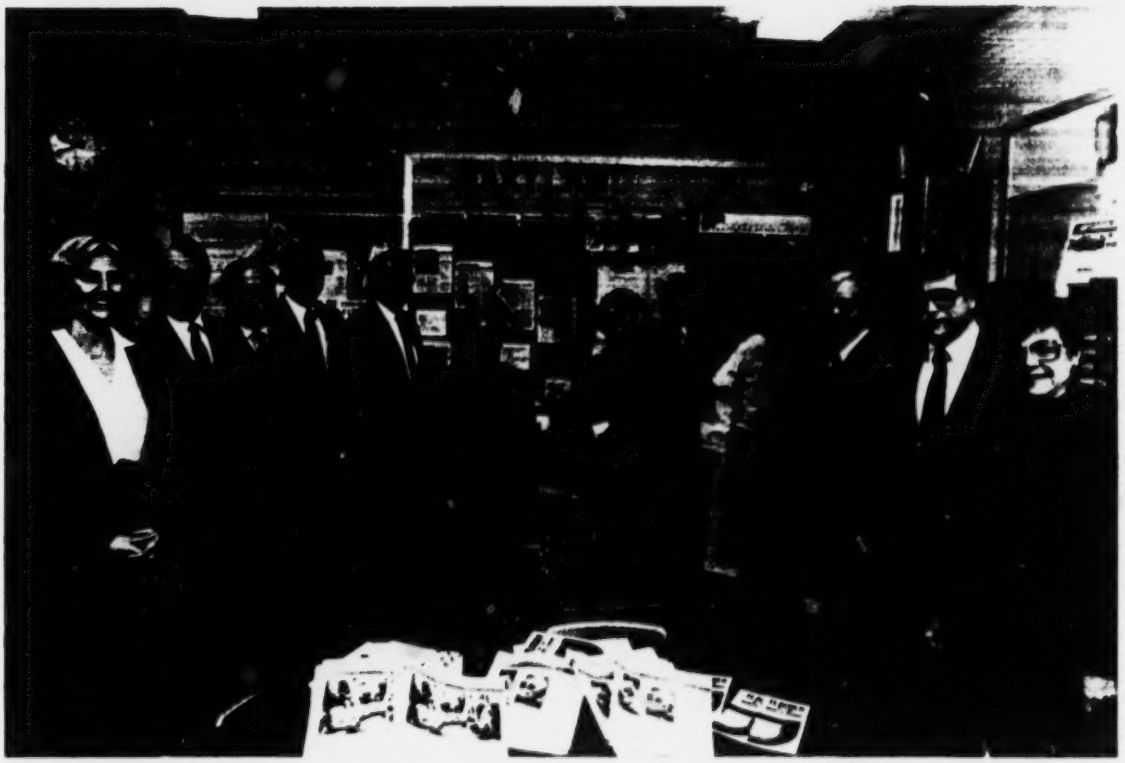

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PROJECT ATTACHMENT NUMBER 4

"Hot Spot" columns.

Montgomery County Hotline

(continued from page 7)

Bosnic: *Are there ways for you to evaluate if volunteers are effective?*

Collins: We have a command structure of senior volunteers who monitor how people are doing and watch for burnout. We have at least 100 volunteers and I cannot monitor them all. We have refresher training to keep volunteers up to date on AIDS, drug issues, cancer deaths, etc. We are constantly recruiting volunteers.

Bosnic: *If someone called to ask how to prevent AIDS, what would you say?*

Collins: There are many ways to contract AIDS, blood transfusion, sexual relations, etc. We try to refer callers to experts in AIDS and usually recommend they call the Whitman Walker Clinic.

Bosnic: *If a new volunteer has a serious call, do you switch to a veteran?*

Collins: No. If a serious call comes in, the volunteer waves a hand and a senior person will notice and respond by writing coaching notes reminding him or her what to find out, to call poison control, etc. The senior is supportive without getting in the way or being distracting, bringing coffee, sodas. If volunteers feel they can't handle a call, they may ask to "hand it off" to other volunteers.

Student: *Is there a specific time you get most calls?*

Collins: Between 6:30 p.m. and 2 a.m.

Student: *Are there chronic callers? Both my parents volunteer at Hotline and have told me about chronic callers.*

Collins: Yes, sometimes you can follow a case and over the years can see real progress.

Student: *Has any sibling or friend called to say you didn't help my friend and she killed herself?*

Collins: No. However someone did call once to ask if her friend, who had committed suicide, had confided to us where she kept the poetry she had written.

Student: *Do you get more calls on the weekend?*

Collins: We are busy all the time.

The Montgomery County Hotline number is 949-6603. The number to call to arrange for a speaker from Hotline to visit your class is 279-3125, the Connection Resource Bank. ∷

HOT SPOT

Third Grade Teachers!

When you prepare lessons for the instructional objectives on soil, the Connection Resource Bank can offer the following resources:

Dr. John Meisinger
Specialty: soil and environment, chemistry research, soil scientist

Mr. John Kittridge
Specialty: soil conservation, soil engineers and geologists, uses of soil in construction

Dr. Richard Weismiller
Specialty: soil research

Mr. Marshall Ray
Specialty: soil conservation in Montgomery County

Connection Resource Bank
We've got what's hot!

Call Judy Messittee, 279-3125.

BEST COPY AVAILABLE

Len Conner, systems analyst with Vitro Corp., has devoted hundreds of hours to developing and implementing the computer program used by the Connection Resource Bank.

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Kesler, project director
Judith Penner, editor
William Wills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

HOT SPOT

Chemistry Teachers!

When you teach the instructional objectives on the nature of radioactivity, the stable radioactive particles and the application of atomic energy to science and society, the Connection Resource Bank can offer the following resources:

Dr. Hall L. Crannell, university chairman of physics department
Specialty: nuclear power, environmental issues, astrophysics.

Dr. Marvin Roush, associate professor
Specialty: nuclear & chemical engineering, topic: "Risks of Nuclear Power Plant, Effects of Nuclear Radiation."

Joe Reader
Specialty: atomic spectra.

Harvey Eisen
Specialty: electronics, radiation.

Joe Coyne
Specialty: nuclear radiation.

Dr. Tawfik Raby
Specialty: production of radio isotopes in medical research, research applications of radiation, can arrange for group of teachers to tour a small research reactor in the area.

Dr. Frank J. Munno, program director of nuclear engineering at local university
Specialty: nuclear waste management.

David Roth
Specialty: prepares and conducts training programs for specific utility needs, operates power plant training, also has large collections of slides, transparencies, pamphlets, papers and charts available.

Dr. David Ebert, training-reactor director at local university
Specialty: can arrange for students to tour reactor with university student guides.

Dr. Mohammed Modarres, university professor
Specialty: assessing reactor safety and reliability.

Connection Resource Bank
We've got what's hot!

Call Judy Messittee, 279-3125

Peckerar's students enjoy career search.

Peckerar wins

(continued from page 2)

Every two or three years Peckerar organizes a Seminar Day at Paint Branch for the entire student body. Over a period of several days, students may schedule themselves for different periods throughout the day (including lunch break) to hear speakers in disciplines such as math and science, art, music and dance, customer services and legal services, skilled crafts and foreign languages. Speakers have included machinists, electricians, plumbers, auto mechanics, construction workers, lithographers, carpenters, church musicians, music educators and therapists, composers, dance choreographers, FBI agents, police officers, lawyers, paralegals, airline representatives and hair designers.

Peckerar has taught seminars for MCPS on organizing an internship program and has helped develop the career awareness curriculum. When the Connection Resource Bank became operational, Peckerar shared all of her resources in science and mathematics with Judy Messitte, bank coordinator, providing about one-third of the original database.

Recalling the years of inviting the community into the classroom, Peckerar said, "I've been doing this for so long that many of my interns are in business for themselves or in a position to hire or employ other interns. Now my interns are taking interns. Sometimes they will call me, or often I will call them. The fun part is finding a new internship placement." ■■

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Kesler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

PROJECT ATTACHMENT NUMBER 5

Forms to recruit new resources.

Connection Resource BANK

YES, WE WANT TO SUPPORT
THE CONNECTION REOSURCE BANK

Company/organization: _____ No. of Employees:

Address: _____ ____ under 10
____ 10 - 49
_____ ____ 50 - 99
____ 100 or more

Contact person: _____ Business Hours

Title: _____ Telephone: _____ _____

Describe your business briefly, including the occupational areas of your staff:

_____

_____

_____

_____

_____

Here's how our company can help:

_____ Tutor
_____ Mentor
_____ Consultant
_____ Judge
_____ Occupational Interview

_____ Student Internship/Job
_____ Shadow Experiences
_____ Student Field Trip
_____ In-Depth Tour
_____ Teacher Opportunities
_____ School year
_____ Summer

Describe briefly any training, research, or work experience available for teachers or students:

_____

_____

_____

_____

_____

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

Connection Resource BANK

CONNECTION RESOURCE BANK
RESOURCE DESCRIPTIONS

1. **PERSONNEL**

SPEAKER:	a person who discusses, illustrates, or demonstrates a predetermined topic with a small or large group of individuals on an occasional basis at school
TUTOR:	a person who instructs an individual or small group of students on topics or concepts that need reinforcement or help on a regular basis at school
MENTOR:	a person who discusses a topic; suggests reading materials, ideas for further work or other resources; and may serve as a role model by working with a student by telephone or in person on a regular basis either at school or the work site
CONSULTANT:	a person who provides professional advice or services to an individual or group on a topic, program or project (e.g. a science fair project) in person or by telephone on an occasional basis for the duration of the project
JUDGE:	a person with sufficient knowledge to decide on the merit of a project, contest entry, or activity for a competition on an occasional basis, usually at school
OCCUPATIONAL INTERVIEW:	a person who provides students with information about a particular career or occupation in a structured interview at the work site or at school during a career day
ON-SITE SPONSOR:	a person who provides supervision for students at the work site for short term (shadowing) or long term (internship) experiences

2. **INFORMATION/MATERIALS**

INSTRUCTIONAL:	materials presented in audio/visual or written form that provide information on specific topic
SURPLUS EQUIPMENT/ DONATIONS:	goods and materials that may be loaned or donated for instructional or other purposes, either on or off the owner's site

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

Anatomy and Physiology
Cell Specialization
Skeletal System
Muscular System
Nervous System
Sense Organs
Food Chemistry
Digestive System
Respiratory System
Circulatory System
Integumentary System
Excretory System
Endocrine System
Reproductive System
Heredity

Applied Science
Transportation Conveyances
Household Mechanical Appliances
Electricity
Individual Study In Physical Science
Careers In Physical Science
Physiology and Health
Household Products
Life Science for Personal Use
Individual Study in Life Science
Careers in Life Science

Biology 1
Cytology
Reproduction
Genetics
Scientific Evolution
Taxonomy
Microbiology
Anatomy and Physiology of Plants
Anatomy and Physiology of Animals
Human Body
Behavior
Ecology

Biology AP
Unity of Life
Cellular Energetics
Genetics
Diversity of Life
Scientific Evolution
Ecology

Chemistry 1
Classification and Organization of Matter
Atomic Theory, Periodicity, and Radioactivity
Mole Concept

Chemistry 1 (cont.)
Heat and Molecular Motion
Chemical Bonds and Properties of Matter
Thermodynamics
Reaction Kinetics
Solutions and Solubility
Acids, Bases, and Salts
Oxidation-Reduction and Electrochemistry
Carbon and Its Compounds

Chemistry AP
Atomic Theory
Chemical Bonding
Phases of Matter
Solutions
Types of Reactions and Equations
Equilibrium
Reaction Kinetics
Thermodynamics

Earth Science
Stellar Astronomy
The Solar System and Its Exploration
The Earth and Its Motions
The Earth's Atmosphere
Minerals and Their Origins
Petrology
Weathering and Erosion
Oceanography
Structural Geology
Historical Geology

Environmental Science
Energy Flow
Interrelationships of Biology, Geology, and Chemical Cycles
Nature of Ecosystems
Population Studies and Environmental Pollution
Organization and Dynamics of Ecological Communities
Urban and Nonurban Land Use
Urban and Nonurban Water Use
Nonrenewable Natural Resources
Energy Resources and Substitutes
Food Resources and Population

Horticulture Science
Plant Anatomy and Physiology
Careers in Horticulture
Growth Conditions
Plant Propagation
Control of diseases, weeds, and pests

Horticultural Science (cont.)
Greenhouse Management
Plant Identification
Soils and their Preparation
Crop Plants
Lawns
Landscaping

Lab Science
Physical Measurement
Force, Motion, and Simple Machines
Introductory Chemistry
Organic Chemistry
Environmental Studies

Physical Science
Measurement Skills
Atomic Structure
Chemical Formulas and Equations
Classification of Chemical Substances
Radioactivity
Organic Chemistry
Vector Analysis
Force and Motion
Work, Energy, and Power
Thermal Energy
Wave Motion and Sound
Light and Optics
Electricity and Magnetism

Physics 1
Vector Mathematics
Kinematics
Dynamics
Energy
Momentum
Thermodynamics
Electricity and Magnetism
Waves
Modern Physics

Physics AP
Kinematics
Newton's Laws of Motion
Work, Energy, and Power
Systems of Particles-Statics
Rotational Motion
Oscillations and Gravitation
Electrostatics
Electric Current and Circuits
Capacitance and Capacitors
Magnetism

PROJECT ATTACHMENT NUMBER 6

Requests for new resources.

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850

Telephone (301)

May 19, 1987

Robert Leuver, Director
Bureau of Engraving and Printing
14th and C Streets, S. W.
Washington, D. C. 20226

Dear Mr. Leuver,

I am a resource specialist with Montgomery County Public Schools and am writing at the recommendation of Mr. Ira Polikoff to request that a class of 23 gifted elementary school students who have just completed an extensive unit on the history of commemorative stamps (even designing their own stamps around the theme of "Women in the History of America") be permitted to visit your facility to observe stamp production.

Mr. Polikoff explained that your exhibit on stamp production is not yet ready for the public and I assured him that these seven to nine-year-old students would not be offended by an unfinished ceiling. The teacher has assured me that she will provide an abundant number of adults to accompany her class if this opportunity is made available to them.

The only days remaining in the school year for field trips are June 1, 2, or 3. It would be possible for a bus to bring the students to your facility any time between 10 a.m. and 1 p.m. on any one of these days.

Would you let me know if this visit can be arranged? I can be reached by phone at 279-3221. For these students, such a trip would be (please excuse the pun) the final "stamp" of approval for the research and work they have done.

Sincerely,

Judy Kramer

Judy Kramer
Resource Specialist

from "Of Interest"

Do you have any resources to share?

If you know of resources that could be added to the Connection Resource Bank, please consider sharing them. Even though there are more than 850 resources already listed in the Bank, there are regular requests for things not listed there.

Judy Messitte, Bank coordinator, will place resources in the data base so as to protect the privacy of phone numbers and prevent over use of individual volunteers. Persons in the Bank may request that they be called for specific schools, areas or ages. They also may indicate the number of bookings they will accept and their preferred time of day.

At the present time Messitte is filling only requests in science and mathematics. The current list of resources is almost entirely in these two areas.

To add resources to the Bank, please call Messitte at 279-3125 or send a note in the pony to The Connection Resource Bank, CESC, Room 24.

PROJECT ATTACHMENT NUMBER 7

Media articles written about the Resource Bank.

AMERICAN LUNG ASSOCIATION *of Maryland, Inc.*
The Christmas Seal People®

1301 York Road, Suite 705
Lutherville, Maryland 21093
(301) 494-1100
(800) 492-7527

William L. Follett, President
Joyce C. Waite, Executive Director

September 11, 1987

Ms. Judy Kramer
Editor
"Of Interest"
Montgomery County Public Schools
Carver Education Service Building, Room 112
850 Hungerford Drive
Rockville, Maryland 20850

Dear Ms. Kramer:

Enclosed you will find a copy of the American Lung Association of Maryland's newsletter, Highlights, in which your article about Dorothea Nullmeyer appears. As you'll note, we also secured photos of Ms. Nullmeyer and Mr. McCabe from Mr. William Mills for the issue. I have returned the photos to Mr. Mills directly.

Thank you again for granting us permission to reprint your article.

Sincerely,

Leslie Chase

Leslie R. Chase
Associate Director
Communications and Marketing

LRC/agb

Enclosure

To smoke or not to smoke is the question

More than 100 4th, 5th and 6th graders sit cross-legged on the floor of the multi-purpose room at Kensington Parkwood Elementary School, intent on a 15-minute movie that is as shocking as it is important. They are viewing the American Lung Association's film "The Feminine Mistake," a clear plea to children not to smoke.

The film offers medical evidence of the effects of smoking. A smoker's lung power is tested. The effect of one cigarette on the blood vessels in the hands (constricting them and causing the heart to work harder) is demonstrated. The heartbeat and "breathing" of a fetus is monitored before and after the mother smokes a cigarette. Blood pressure changes are observed as a cigarette is smoked. As the smokers learn what is happening to their bodies, their reactions are recorded.

The film's most powerful moments are reserved for the advice of a 43-year-old woman who is dying of lung cancer. Frail and emaciated, she explains that she thought she was risking five years at the end of her life by smoking. She never imagined her life would be cut short so early. In the film, junior and high school students are shown watching this woman's testimony and then deciding to give up smoking.

Dorothea Nullmeyer is the speaker who accompanies the film. Nullmeyer has been lecturing against smoking for many years. She lost her husband to cancer.

After the film, she begins what for her has become a crusade. Nullmeyer explains that "side stream smoke," the smoke that comes from the end of a burning cigarette, is much more dangerous than the smoke that is inhaled. Smoke is inhaled for only 24 seconds. Side stream smoke is in the air for 12 minutes as a cigarette is smoked. She advises the children to "move away" from people who are smoking.

Dealing with the issue of parent smokers, she suggests that children explain the dangers of side stream smoke to their parents and ask them to try to stop smoking. Nullmeyer emphasizes that whether or not to smoke is a choice each of us makes.

William Mills, Montgomery County Public Schools

William Mills, Montgomery County Public Schools

She asks for questions from her audience. Hands are raised all over the room. "Why do they even make cigarettes?" (For many years we were unaware that they were dangerous.) "What can the Lung Association do to help people who are addicted to it?" (They hold classes to help smokers stop.) "Is smoking as bad or worse than drugs?" (Both are bad. Don't touch either.) "Is a pipe as bad as breathing in a cigarette?" (Equally as bad and so is chewing tobacco.) "What if you do sports?" (If you smoke and are in an athletic activity, you won't have the lung power to win.) "Can you tell us some of the diseases from smoking?" (Emphysema, cancer of the lungs, mouth, throat, high blood pressure and heart disease.)

Both speaker and film carry the American Lung Association's message to the target audience. "You are risking your lives if you smoke." To book this resource, call your local Lung Association office.

Dorothea Nullmeyer (above and right) speaks for the American Lung Association to students at Kensington Parkwood Elementary School about how smoking affects the body.

Reprinted with permission from Montgomery County Maryland Public Schools.

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Business, School System Forging Closer Connection

BEST COPY AVAILABLE

9,000 Students Aided Last Year

By Ann Rose

The Montgomery County Education Connection has grown since its start three years ago to a membership of more than 40 businesses. At 8 a.m. on July 29, the group will hold its annual meeting at the school system's Carver Educational Services Center (CESC) in Rockville. New members are encouraged to join, says Sally Keeler, School)Business Coordinator for the public schools. The group will hear an annual report and elect officers and a board of directors. William E. Jones, Vice President of the Potomac Electric Power Company, began his term as president of the Education Connection on July 1. Donald R. Johnson, Director of the National Measurement Laboratory of the National Bureau of Standards, is the nominee to be president in 1988-89.

The Education Connection and the Chamber of Commerce Adopt-A-School Program are two ways for county businesses to cooperate with the public schools in projects of mutual benefit.

More than 9,000 children benefited during the past school year from resources provided by the Montgomery Education Connection, according to the group's report to the School Board in May, which will be updated for the annual report. Established in the spring of 1984, the Connection seeks to assess school and business needs and to initiate projects and activities that can be of mutual benefit. Businesses pay $500 a year to be members, and their representatives devote their time without pay.

"We have a vested interest in having the best school system possible," the group's 1986-87 president, Clifford M. Kendall the president of Computer Data Systems, Inc., told the Board. "So much publicity is anti-business and even anti-school system. We'd like to do something positive."

There are nine working committees. The board meets monthly at the CESC. Frederic J. Bell, the Executive Vice President of W. Bell and Company, serves as Secretary. The group's Treasurer is Alan R. Ledbetter, Vice President of the Government Employees Insurance Company.

Activities

Members of the Connection, the School Board was told, have tried to focus on activities that would have the greatest impact with available resources, and have therefore emphasized programs that would help staff to teach students better for years to come. Apart from dues, the organization has always stressed involvement rather than fund raising.

The Connection worked on six main projects this year:

- A computerized resource bank
- A new Teacher of the Month Award that began in February
- A summer job bank for

Many of these projects will continue next year. Keeler reports that the Connection is also working on the concept of a student investment project. The Connection, she says, has voted to spend several thousands of dollars to expand students' knowledge of the market, with the advice of high school economics teachers. Ideas so far include a national stock market game or investment clubs in schools.

The Connection Resource Bank was the group's original project in 1984. It is a computerized data base of math and science resources that are available to classroom teachers to extend and enhance the curriculum. Work has begun on coding and entering social studies resources, but there was no money in Category I of this year's school budget to expand the program.

To produce the data base, systems analysts and programmers from Vitro Corporation and Automated Sciences Group, Inc. spent hundreds of hours developing a program to operate through the school system Volunteer Services office. A special committee worked with school system math and sciences coordinators and the staffs of Wootton and Paint Branch, the two pilot high schools, to develop an initial list of resources that could be made available through the program. Computers at Wootton and Paint Branch have been available to teachers this past school year, and a third computer at Blair High School was activated this spring.

PEPCO developed a logo and graphics for Resource Bank materials and printed a teacher brochure and the cover for a

Adopt-A-School

Adopt-A-School is a joint venture of the public schools and the county Chamber of Commerce. Thirty-one businesses and 29 schools cooperated last year in meeting the needs of more than 1,000 students. Carla Anderson, of Maryland Natural Gas, is the Adopt-A-School Committee chairperson.

Adopt-A-School matches a business with a school in a partnership that provides students with experiences to help them make better informed educational choices and career plans. The program also increases student and teacher awareness of the purposes, operation, opportunities and expectations of business and industry. The Adopt-A-School program helps each institution understand the other better.

Paired schools and businesses develop their own individual school plans, based on the identified needs of the individual school and the available resources of the business. No monetary support is required of sponsors. This year for the first time there were more businesses than schools looking for matches. Additional schools are encouraged to consider joining next fall.

The Montgomery County program has grown in its nine-year history from four schools and nine business matches the first year, as County Executive Sidney Kramer and other speakers remarked at the annual appreciation breakfast last May. School system Adopt-A-School Coordinator Lois P. Parker recalled that she and Kramer had been the ones who first presented the program to the county Chamber of Commerce ten years ago, when Kramer was president of the Chamber.

Edward Mizerek, president-elect of the Chamber of Commerce, said that businesses are in-

9,000 Students Aided Last Year

By Ann Rose

The Montgomery County Education Connection has grown since its start three years ago to a membership of more than 40 businesses. At 8 a.m. on July 29, the group will hold its annual meeting at the school system's Carver Educational Services Center (CESC) in Rockville. New members are encouraged to join, says Sally Keeler, School)Business Coordinator for the public schools. The group will hear an annual report and elect officers and a board of directors. William E. Jones, Vice President of the Potomac Electric Power Company, began his term as president of the Education Connection on July 1. Donald R. Johnson, Director of the National Measurement Laboratory of the National Bureau of Standards, is the nominee to be president in 1988-89.

The Education Connection and the Chamber of Commerce Adopt-A-School Program are two ways for county businesses to cooperate with the public schools in projects of mutual benefit.

More than 9,000 children benefited during the past school year from resources provided by the Montgomery Education Connection, according to the group's report to the School Board in May, which will be updated for the annual report. Established in the spring of 1984, the Connection seeks to assess school and business needs and to initiate projects and activities that can be of mutual benefit. Businesses pay $500 a year to be members, and their representatives devote their time without pay.

"We have a vested interest in having the best school system possible," the group's 1986-87 president, Clifford M. Kendall the president of Computer Data Systems, Inc., told the Board. "So much publicity is anti-business and even anti-school system. We'd like to do something positive."

Merle Garvis, president of Cordanum, Inc. in Bethesda and who served as the Connection's first president, was also present for the report to the School Board. "We in business benefit from this collaboration," he assured the Board.

The business of the Connection is carried out by a 16-member board of directors composed of Keeler, a representative from the county Chamber of Commerce, and 14 individual business representatives to be elected at the annual meeting. A representative of the County Executive's staff serves as a non-voting liaison.

There are nine working committees. The board meets monthly at the CESC. Frederic J. Bell, the Executive Vice President of W. Bell and Company, serves as Secretary. The group's Treasurer is Alan R. Ledbetter, Vice President of the Government Employees Insurance Company.

Activities

Members of the Connection, the School Board was told, have tried to focus on activities that would have the greatest impact with available resources, and have therefore emphasized programs that would help staff to teach students better for years to come. Apart from dues, the organization has always stressed involvement rather than fund raising.

The Connection worked on six main projects this year:

- A computerized resource bank
- A new Teacher of the Month Award that began in February
- A summer job bank for teachers plus efforts to help with housing for teachers new to the county
- Serving as the financial clearinghouse for this summer's metropolitan area Business Institute for Educators
- Development on a trial basis of plans for a job readiness skills project at Blair and Richard Montgomery High Schools
- A project chaired by former Area Superintendent Alan Dodd to provide inservice information for the staff at Eastern Intermediate School about the latest in communications technology

Many of these projects will continue next year. Keeler reports that the Connection is also working on the concept of a student investment project. The Connection, she says, has voted to spend several thousands of dollars to expand students' knowledge of the market, with the advice of high school economics teachers. Ideas so far include a national stock market game or investment clubs in schools.

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PEPCO developed a logo and graphics for Resource Bank materials and printed a teacher brochure and the cover for a teacher manual. As of the report in May, PEPCO was working on a brochure for use in recruiting resources from more businesses and orgainzations in the county.

A newsletter called *Of Interest* was published last school year through a grant from the U.S. Department of Education and funds from the Connection. The newsletter and its editor, Judy Kramer, let teachers in all schools know about the resources available to them through the Bank. "The feedback we're getting from teachers is 'Please, more'," Kramer told the Board.

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Edward Mizerek, president-elect of the Chamber of Commerce, said that businesses are interested in helping to maintain the high quality of the Montgomery County Public Schools.

"I hear over and over again from citizens and businesses," Council member Bruce Adams agreed, "that the excellent school system is why they came to Montgomery County."

Mizerek presented Parker, who is retiring in January after 38 years in the school system, with an engraved vase in "appreciation for a job well done." Through the Adopt-A-School Program, he said, over a thousand students are "getting out into business and industry before they have to do it for real."

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THE MONTGOMERY
Journal
2 RESEARCH COURT, ROCKVILLE, MD. 20850
(301) 670-1400

November 16, 1987

Judy Kramer
651 Great Falls Road
Room 11
Rockville, Maryland 20850

Dear Judy:

Thanks for your assistance on such short notice. I hope that you and William Mills are pleased with the play and the credit. The photos were exactly what the story needed.

Thanks again.

Best Wishes,

Dennis R. Whitehead
Photo/Graphics Editor

Students go to 'bank' f

By RAY PY
Journal staff writer

The county's most unique talent agency works out of a Rockville school basement where it books hundreds of performers before audiences whose only admission is a desire to learn.

Scientists, mathematicians, engineers, pilots, accountants, writers, and even boomerang throwers and plumbers are among the talents gathered in a computerized resource bank from which teachers and students draw to aid in classroom work.

Judy Messitte, the bank's director and chief researcher, said the talent bank began two years ago from "a drawer full of files" and now includes 1,500 sources who work with math and science classes as tutors and mentors, lecturers and tour guides.

Formed through the Montgomery Education Connection Inc., a nonprofit foundation, the Connection Resource Bank works out of a basement office in the Julius West Middle School. Part-time help, volunteers or federal grant employees are used to link the schools to the business community, said Sally Jackson, the school system's coordinator of volunteer services.

Thanks to recent bank "withdrawals," a class heard a Smithsonian Natural History Museum expert discuss how water salinity affects reproduction among crustacea; a Georgetown University neuropsychologist who helped design experiments in brain teaching techniques; and a National Weather Service spe cialist who made a hydrometer in class project.

The bank also provided a real "M Wizard" in the form of Dr. Davi Ederer, a National Bureau of Sta dards spectroscopist, to demor strate light beams to fourth-grader Nancy Goor, a science writer wh paralleled scientific study with cr ative processes in writing to sixt graders; and Sanford Kramer, a B thesda plumber who highlighted h presentation to fourth-graders with hands-on tour of his service truck.

Deviation in learning

"Sometimes we deviate from sc ence and math areas to handle sp cial requests, like asking Takom Park's former Mayor Sammie Abbo to discuss city hall careers, or cert fied public accountant Steve Durbi to explain investment opportunitie We booked junior and senior classe early this year for a question-and-a swer session with Suicide Hotline, Messitte said.

Field trips are often a special cha lenge for the bank, requiring carefi coordination between the class an the site to be visited. Messitte sa the bank has "a proud record of ge ting visitors where they should be – and on time."

"We are often dealing with ver busy people on very tight schedule and it is important that we conside their time if we are going to use the services again," Messitte said.

For that reason, teachers ar asked to request trips to resourc sites at least three weeks in advanc and the bank handles all th arrangements.

Contact people at each resourc site are informed of the numbers c students making the tour and ho long the students will be there. Th contact person is also informed c the subject matter the class woul like to observe on the trip.

Talking to students

"We had some difficulty with computer laboratory which invite an advanced elementary school con puter club on a field trip, then spe all their time 'talking down' to th students. Many adults are not awa how knowledgeable students can b particularly in computers," Messit said.

William Mills

Dr. Catherine Mabe, with her dog Daphne, meets with fifth- and sixth-grade girls to discuss what it is like to be a veterinarian.

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ts go to 'bank' for career information

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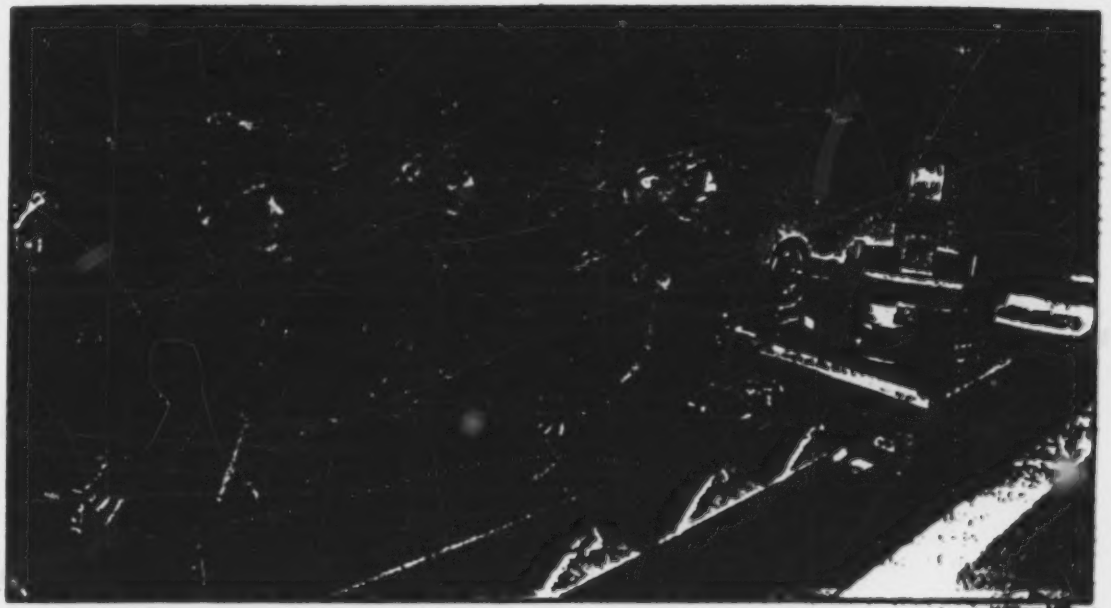

Students follow the movement of the adjuster for a diffraction grating, a mirror on which 30,000 rulings per inch have been inscribed.

Among the more difficult assignments are finding, for special class projects, mentors who have specific or detailed talents to aid a class or student in a long-term project.

"One class needed a physician who could speak several languages, but one of the languages had to be Spanish," Messitte said. The bank found the individual in plenty of time to complete the project successfully, she said.

Resource Connection has handled about 400 requests this year, coming mainly from science or math teachers seeking speakers or from elementary school teachers needing everything from computer laboratory field trips to airplane pilots, and [illegible] boomerang throwers [illegible] flyers.

Students are allowed in the bank into the bank so teachers will have updated information about the resource.

"We don't critique the speaker as such, but the evaluations help us know the level of the speaker's information so we can place speakers with classes on the same level. We feel a misassigned speaker can waste time for both the class and the speaker," Messitte said.

Updated information about speakers and new resources are announced in a federally funded newsletter called " . . . of interest," edited by Judith Kramer, which circulates among the system's math and science teachers.

Newsletter assistance

"We provide feature stories and pictures of many of the resources we speakers and their area of expertise.

Many of the bank's resources are referrals from teachers, inquiries made in the business community and from corporations that volunteer their employees or staff. But many of the bank's more unique resources came through the efforts of a retired NASA official, Dr. Michael Vaccaro, who donates 20 hours a week recruiting former associates to serve as resources.

With Vaccaro's assistance, one elementary class studying the theory of flight toured an airport control tower, heard about the principles of flight from boomerang throwers and learned, from two women commercial pilots, how airplanes stay aloft.

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Students are allowed in the bank only if they are working on extended projects, such as a science fair, and have their class adviser's permission. Students who use the bank are required to make their own contacts and arrangements with the resource as a part of the project.

Evaluations of the resource, the topic and its presentation made by the teacher in the classroom is fed into the bank so teachers will have updated information about the resource.

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Newsletter assistance

"We provide feature stories and pictures of many of the resources we have available, the subjects they cover and, often, the reaction of the students and teachers," Kramer said. "Teachers can determine from the newsletter if any of our resources can be used in their classes."

One of the newsletter's features is a column called "Hot Spot" which suggests a classroom topic, such as radioactivity, then lists available speakers and their area of expertise.

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"The whole lesson on flight has been among our most successful bookings," Kramer said. "A secondary lesson the class was able to learn was that women now were becoming commercial pilots.

"One girl was so excited about the lesson that she said she was undecided whether she should become a doctor, as she originally planned, or learn more about flight and become a commercial pilot instead."

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12-19-86
The Suburban
Record

County Teachers Getting Newsletter

Montgomery County Public Schools, through a grant from the U.S. Department of Education and additional funding from the Montgomery Education Connection, has begun to publish a monthly newsletter entitled "Of Interest."

The publication is designed for teachers in the county's school system, providing them with information about the Connection Resource Bank (CRB). The Bank was initiated by the Montgomery Education Connection as one of several links between the schools and the business community. Some 850 businesses and individuals are listed in this computerized data-bank—particularly in the areas of science and mathematics. Through a telephone call to the project's coordinator, Judy Messitte, teachers can gain access to persons, materials and learning projects that will enrich the classroom experience.

"Of Interest" provides teachers with background information about the resources available in the Bank. Features on student internships and opportunities for teacher seminars and grants are presented, as well as information about how to obtain tutors, mentors, field trip possibilities and organized tours.

Newsletter Editor Judith Kramer emphasizes the fact that the Bank is easy to use and "...it brings into the county schools the expertise and talent of the community." Computers giving access to the Bank will shortly be operating in Paint Branch and Wootton high schools. The Education Connection established the Bank as a means for the business community and the schools to assess and meet each others needs. "The business community feels the schools are educating their future employees," says Kramer, "and the Bank and newsletter allow that community to play an active part in the process of education."

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Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850

Telephone (301)

April 11, 1987

Lois Hartman
School LServices Dept.
Sentinel Newspaper
P.O. Box 1272
Rockville, Maryland 20850

Dear Lois,

It is my pleasure to share these issues of the Connection Resource Bank's newsletter "Of Interest" with you as per your request to Judy Messitte, Resource Bank Coordinator. There will be one final issue this year published in May.

The Connection Resource Bank has served over 6,000 students in Montgomery County's public schools this year, matching volunteer resources to students' needs. Through the Bank, the schools and the business communities serve each other.

Thank you for your interest.

Sincerely,

Judy Kramer

Judy Kramer
"Of Interest" editor

PROJECT ATTACHMENT NUMBER 8

Montgomery County Public School articles about the Resource Bank.

"Schoolbeat" is sent to the leadership of community organizations (chambers of commerce, business, state and local governments.)

"The Bulletin" is distributed weekly to all Montgomery County Public School employees.

Cindy Read (above left), a graduate student at Gallaudet University, demonstrates sign language communication to students at Weller Road Elementary School as part of the Connection Resource Bank's program to bring resource people into MCPS classrooms. A group of students from Stedwick Elementary School (below left) learn about polishing precious stones at the Gem and Lapidary Show held in Gaithersburg. Lewis Williams gives pointers to an MCPS student (above) about the stone-polishing craft he learned many years ago.

The school/business partnership pays off

The partnership between Montgomery County Public Schools and the business community is a vital one and this year the alliance grew even stronger.

One major example of this vital school-business link is the Connection Resource Bank, a database with more than 1,100 volunteer experts in science and mathematics, that provided MCPS students this year with more than 300 speakers, mentors, tutors and student opportunities for learning—both in the classroom and on-site in laboratories and business offices.

Supported by MCPS and by the Montgomery Education Connection, a non-profit foundation that serves as a liaison between businesses and the school system, the Connection Resource Bank has just completed its first full year of operation. During the year, more than 10,000 MCPS students benefited from the talent and expertise that local scientists and business persons have been willing to share as volunteers.

Among other experts, Dr. Allan Goldfarb of the University of Maryland has agreed to make his laboratory available for student experiments in exercise biochemistry. Dr. Ida Baron, Director of Neuropsychology at Georgetown University functioned as mentor to a student designing an experiment on brain function and trips to Gallaudet University and the National Bureau of Standards were arranged as well through the bank.

Archeologists, solar specialists, bankers, writers and engineers visited classrooms and provided MCPS students with real-life insights and ideas about careers. Teachers throughout the county were informed about resource opportunities in a monthly newsletter, *Of Interest*, published through a grant from the U. S. Department of Education to Paint Branch High School—one of the pilot schools for the Resource Bank. Anyone interested in joining the Connection Resource Bank to provide MCPS students with learning experiences, may call Judy Messitte at 762-6192 for more information.

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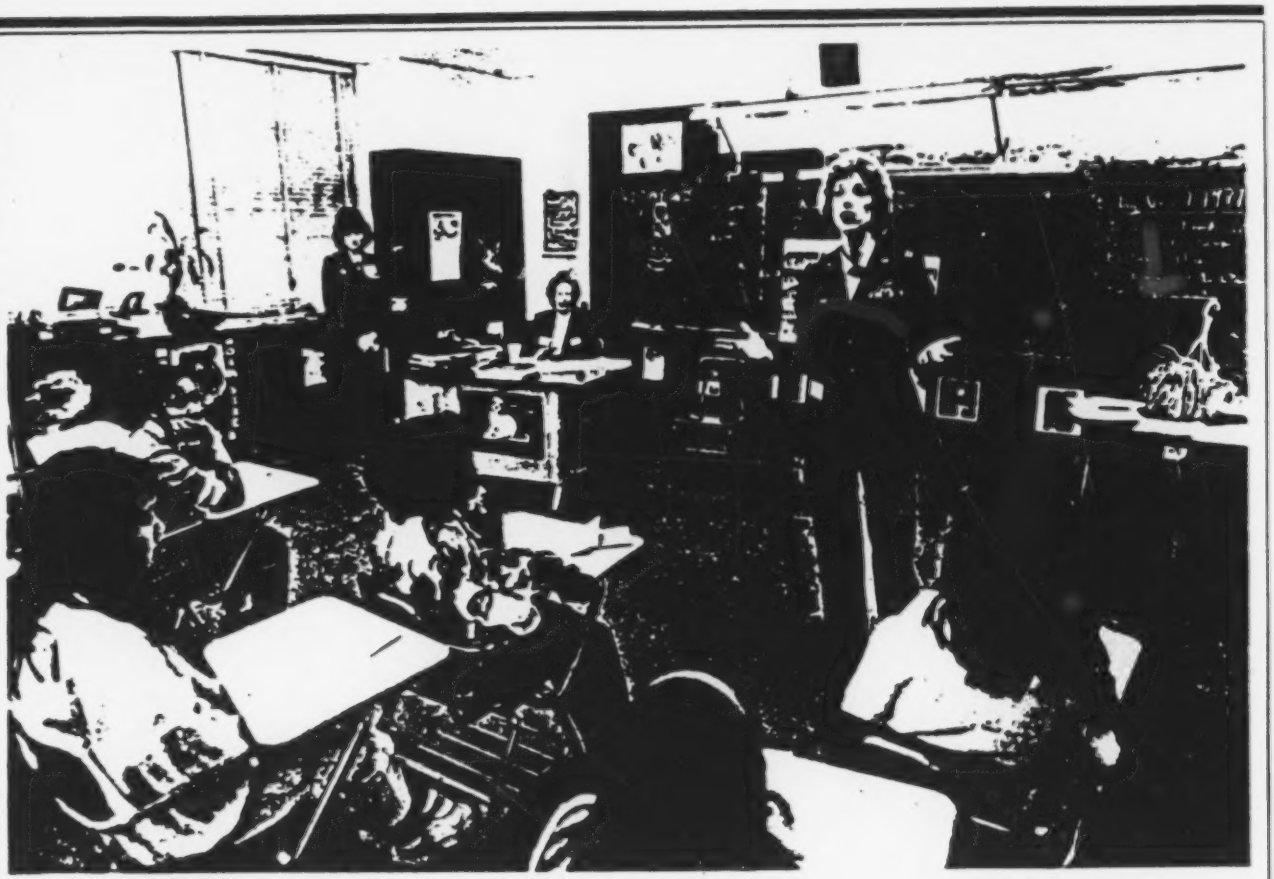

An Air Force captain (top) describes her job to students at Takoma Park IS; (above) a meteorologist explains the forces of a storm to another class.

MCPS 'matchmaker' brings students, experts together

Some matches are made in heaven and some are made in the Office of Volunteer Services where Judy Messitte matches teachers' requests for speakers, mentors and tutors in science and mathematics with more than 1,400 volunteer experts in the database of the Connection Resource Bank.

Messitte, coordinator of the bank, also arranges field trips for students and provides other educational services.

Supported by MCPS and the Montgomery Education Connection, a nonprofit foundation that serves as a link between businesses and the school system, the Connection Resource Bank is entering its second year of operation. More than 10,000 students have benefited from the expertise of members of the business and scientific communities who have been volunteer resources. Through the bank, 381 people have come to the schools or invited students to visit their businesses and laboratories.

During the summer, the bank provided many speakers who gave presentations to sixth grade students in the Middle Start program at Montgomery College and to students at Banneker JHS. The bank also provided several experts who shared their knowledge and inventions with a group of gifted/learning disabled students at Tilden IS, whose summer program focused on creative communication. Several internship placements and mentoring experiences were arranged by the bank during July and August.

The newsletter, *Of Interest*, published monthly October through May,

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More than 10,000 students have benefited from the expertise of members of the business and scientific communities who have been volunteer resources.

informs MCPS teachers about the resources available. *Of Interest* is supported by an Excellence in Education award from the U.S. Department of Education to Paint Branch HS, one of the pilot schools for the bank.

Requests to the bank have run the gamut of topics. One student needed "a mentor who has a laboratory where I can work on a project on the effects of anabolic steroids on the muscle mass growth in active and sedentary lab animals." The bank provided Allan Goldfarb from the University of Maryland, whose specialty is exercise biochemistry.

A student who wanted to study the phenomenon of boomerangs was matched with Col. Bevan Brown of the American Kite Flyers Association.

Field trips arranged by the bank include visits to Gallaudet University, the National Bureau of Standards and the Washington Children's Museum.

Archeologists, solar specialists, bankers, physicists, writers, engineers, microbiologists and statisticians have brought the practical side of science and mathematics into the classrooms.

Messitte is booking requests for this year. The Connection Resource Bank is housed at Julius West MS and can be reached by dialing 762-6192. □

The intracacies of polishing a stone draw a Stedwick ES student and an expert together at a gem and mineral show, a field trip arranged by the bank.

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Article from "Of Interest" Appearing in the
American Lung Association Newsletter

PROJECT ATTACHMENT NUMBER 9

Article to PTA newsletter editors.

To: All Newsletter Editors
From: Judy Kramer
Resource Specialist
279-3221
Re: Information for possible article in your newsletter

Connection Resource Bank Operational!

Montgomery County teachers have a new tool at their disposal! A computerized resource bank has been created which enables classroom teachers to access available resources in the communities and businesses of the Washington metropolitan area. The Connection Resource Bank serves as a mechanism through which classroom teachers can express needs for people, places, and things to enrich learning for students. The business community can offer personnel, work sites, and materials to respond to those needs as well as express its own needs regarding education programs. The Bank already lists over 850 resources, predominantly in science and math. It is being expanded to include social studies and ultimately the complete curriculum. Presently available to all Montgomery County teachers by phone, the Bank eventually will place a computer terminal in each school so that teachers may browse to find resources ranging from expert speakers, internships, mentors or surplus equipment to field trips and shadow experiences (in which a student spends a day observing an expert at work). The Bank provides Montgomery County with an opportunity to expose its greatest natural resource, its children, to all that the business and general community have to offer.

PROJECT ATTACHMENT NUMBER 10

Letters to Montgomery Education Connection members.

MEMORANDUM

To: Members of the Montgomery Education Connection

From: Judy Kramer, editor
"Of Interest," The Connection Resource Bank Newsletter

Subject: Newsletter publication

As many of you know the first big project of the Montgomery Education Connection was the establishment of the Connection Resource Bank, a database of more than 1,000 resources in science and mathematics that is available to all the teachers of Montgomery County. A federal grant from the U.S. Department of Education has made it possible to publish a newsletter that is distributed to every teacher monthly informing them of the resources in the bank. Copies of the newsletter are enclosed for your information.

If you do not have members of your business or organization listed in the Resource Bank, I would like to invite you to fill out the enclosed form and return it to the address listed on the back. We have more than 1,000 resources registered, but we regularly receive requests for which we have no listing.

Thank you for your interest and your support of the Connection Resource Bank and "Of Interest" through the Montgomery Education Connection.

850 Hungerford Drive • Rockville, Maryland 20850 • 301-279-3391

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850

Telephone.com

May 4, 1987

Mr. Richard England, President
Hechinger Foundation
3500 Pennsy Drive
Landover, Maryland 20785

Dear Mr. England:

As a member of the Montgomery Education Connection, I thought you might be interested in learning how we have spent the funds the Connection provided to the Connection Resource Bank, a database of over 1,000 businesses and scientists that is available to the teachers and students of our schools.

The enclosed newsletters have been distributed monthly to all 7000 teachers in Montgomery County schools. A federal grant supplemented by funds from the Connection has made this publication possible.

I hope you are pleased with the way the business community and the school community are working together to share expertise.

Sincerely,

Judy Kramer

Judy Kramer
editor, "Of Interest"

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850
Telephone (301) 762-5985

February 5, 1988

Ms. Jean Sutton
Vitro Corporation
14000 Georgie Avenue
Silver Spring, Maryland 20910

Dear Ms. Sutton:

As a member of the Montgomery Education Connection, you share in the accomplishments of the Connection Resource Bank, a database of over 1,500 volunteers from the scientific and business communities who have agreed to share their expertise with the students and teachers of Montgomery County Public Schools. Teachers may request speakers, mentors, field trips and other resources drawn from the database. In two years, the Resource Bank has interfaced with more than 20,000 students bringing the best of the "real world" into the classroom.

As the editor of the Connection Resource Bank's newsletter, *"Of Interest,"* I would like to share with you some of the exciting programs your participation has made possible. *"Of Interest"* is distributed monthly to the 7,500 teachers and administrators of Montgomery County Public Schools.

As you examine these newsletters, I hope you will feel the excitement this program has generated. You are very much a part of its success.

Sincerely yours,

Judith Kramer
Editor, *"Of Interest"*

Enclosure

JK:nb

6-88MEC

June 6, 1988

Dear Montgomery Education Connection member:

I am pleased to share the May issue of "Of Interest" with you. It is the final issue produced under the federal grant and the final issue for this school year.

Next year "Of Interest" will be a joint publication of the Montgomery Education Connection and Montgomery County Public Schools. It will continue to be distributed monthly, October through May, to more than 7,000 teachers and other professional staff members in all schools.

The Connection Resource Bank has had a year of extraordinary growth. To date, more than 30,500 students have shared the direct services of many of the 1,600 experts in the Bank data base. Teacher requests have poured into the Bank faster than they can be processed. More than 1,158 teacher requests have been filled. Staffing has been expanded to handle the demands of growth.

Because your support of the Montgomery Education Connection has been crucial to the success of this project, we are delighted to take this opportunity to thank you. We hope you are pleased with your investment and that the Bank continues to be of mutual benefit to both businesses and the public schools of Montgomery County.

Sincerely,

Judith Kramer, editor
"Of Interest"

PROJECT ATTACHMENT NUMBER 11

Letter to County Executive's office.

Information Office Room 112
Montgomery County Public Schools
850 Hungerford Drive
Rockville, Maryland 20850
April 22, 1988

Dr. Maxine Counihan
Assistant to the County Executive
Montgomery County Government
101 Monroe Street
Rockville, Maryland 20850

Dear Dr. Counihan:

I have assembled a set of this year's "Of Interest" to give you an idea of the services the Connection Resource Bank is providing to both the school system and the community. The final issue will be published in May and I will send you a copy.

In the April issue you will find an article about the computer specialist you and I discussed some weeks ago at a Montgomery Education Connection meeting.

Thanks for your interest.

Sincerely,

Judy Kramer, editor
"Of Interest"

PROJECT ATTACHMENT NUMBER 12

Business recruiting brochure.

MONTGOMERY EDUCATION | CONNECTION

Wonderful things happen when business gets involved in education.

In fact, they're happening now!

This is your invitation to get involved.

THE BUSINESS–EDUCATION PARTNERSHIP

Q: What is the MONTGOMERY EDUCATION CONNECTION?

A: The Connection is a non-profit foundation established to develop business and institutional support for the Montgomery County Public Schools. The Connection brings businesses and schools together to engage in projects that benefit both, and in so doing, contribute to the economic health and growth of Montgomery County.

Q: What does the Connection do?

A: The Connection helps schools add real-world training and experiences to programs for students and staff, provides appropriate volunteers to add business expertise to study and interview committees and engages in projects that are requested by the superintendent of schools or business members of the foundation.

Q: Who belongs to the Connection?

A: Business owners and executives like you. Men and women who want to have an impact on the quality of education in Montgomery County. More than 50 firms are already active supporters of the Connection. Everything from Fortune 500 giants to small business owners and professionals. Everyone can help.

Q: How can sponsorship of the Connection benefit my business?

A: In a number of ways. It is important to maintain the nationally recognized quality of the Montgomery County school system as a powerful incentive in recruiting employees from outside the area. It is a long-term investment in developing our local work force. A corporate recruiting expense, if you will. You also will be helping build a better educated, more affluent pool of consumers for your products and services.

Q: What programs does the Connection sponsor?

A: 1. Connection Resource Bank—A computer database that connects teachers with speakers, mentors, field trips, student and teacher internships, demonstrations or materials in the areas of mathematics and science.

2. Teacher of the Month—A teacher who makes outstanding or innovative use of community resources to enhance the curriculum is given a cash award and a day's leave to study local business.
3. STARS (Students Achieving Real Success)—A job readiness skills program for high school students designed to help them build the attitudes and skills needed to become successful in the working world.
4. Student Economics Project—A program that allows economics students to participate in the Securities Industry Association's Stock Market Game, helping build awareness of the importance of capital in American business. A second part of the program provides in-service training in the stock market and finance for economics teachers.
5. Summer Job Bank—A program to help attract and retain excellent teachers by helping them find employment during the summer months.
6. New Teacher Orientation—An annual breakfast to welcome new teachers to Montgomery County and make them aware of the resources the Connection can provide.

Q: How is the Connection funded?

A: The Connection is funded through corporate contributions and in-kind support and has the active support of the Board of Education and the administration of the Montgomery County Public Schools.

Q: How can my company help?

A: You can help by having your business become an active partner in this unique business-education partnership by contributing in one of the following categories:

Associate partner	$200–$499
Corporate partner	$500–$999
Benefactor partner	$1,000 or more

Ideally, you can provide your active participation and that of your staff to serve on Connection committees, act as speakers, mentors, or consultants. You can provide instructional aids, surplus equipment, awards or scholarships.

When business leaders get involved in education, wonderful things happen.

YES, I want to be involved with the MONTGOMERY EDUCATION CONNECTION.

Name _____

Title _____

Firm/Organization _____

Address _____

City _____ State _____ Zip _____

I would like to support the Connection through a contribution of:

$200–$499 ☐

$500–$999 ☐

$1,000 + ☐

☐ **I would like more information about the Connection. Please have someone call me at ( ) _____.**

MONTGOMERY EDUCATION CONNECTION
850 Hungerford Drive, Room 112
Rockville, MD 20850
(301) 279-3391

Some of the companies who contribute professional expertise and financial support to the Connection:

Adsystech, Inc.
Authorware
W. Bell & Company
Berlin, Karam & Ramos, P.A.
Chase Manhattan Financial Services
C & P Telephone Company
Computer Data Systems, Inc.
Contel Technical Services
Cordatum/BSI, Inc.
Ehrlich-Manes Associates
First American Bank of Maryland
Foulger-Pratt Construction
Carl M. Freeman & Associates, Inc.
G E Information Services
GEICO
Giant Food, Inc.
John Hanson Savings Bank
Thomas P. Harkins, Inc.
Hechinger Foundation
House of Printing
IBM Corporation
JC Penney Co., Inc.
Kaiser Permanente
Linowes & Blocher
Marriott Corporation
Maryland Natural Gas
Metro Business Forms
Montgomery County Chamber of Commerce
Montgomery County Teachers Federal Credit Union
Montgomery County Public Schools
National Association of Securities Dealers, Inc.
National Bureau of Standards
National Institutes of Health
Potomac Electric Power Company
Potomac Investment Associates
Reliance Furniture Service
Sentinel Newspapers
Shulman, Rogers, Gandal, Pordy & Ecker, P.A.
Sovran Bank/Maryland
TeleSec
Tracor Applied Sciences
University of Maryland
Vitro Corporation

The Connection and you: call or write for more information

Montgomery Education Connection
850 Hungerford Drive, Room 112
Rockville, Maryland 20850
Telephone: 279-3391

PROJECT ATTACHMENT NUMBER 13

Resource Bank information packet.

Connection Resource BANK

The Connection Resource Bank is a database of over 1,000 volunteers in the fields of science and mathematics who have volunteered to act as resources for the teachers and students of Montgomery County Public Schools.

REGISTRATION FORM • INDIVIDUAL

Name _____ (LAST) _____ (FIRST) _____ (MI)

Address _____ (STREET) _____ (CITY) _____ (STATE) _____ (ZIP)

Occupation/Job Title _____

Company _____

Address _____ (STREET) _____ (CITY) _____ (STATE) _____ (ZIP)

I prefer to be contacted (check all that apply):

☐ at home phone _____

☐ at work phone _____

☐ through company contact person

_____ NAME

_____ PHONE

Time Commitment:

☐ frequently ☐ occasionally
☐ once a month ☐ summer

Grade Preference:

☐ K - 3
☐ 4 - 6
☐ 7 - 9
☐ 9 - 12

Group Size:

☐ small group
☐ class
☐ assembly

Place:

☐ at school site
☐ at work site

Geographic Preference by high school area (please check all that apply):

☐ Bethesda-Chevy Chase
☐ Montgomery Blair
☐ Winston Churchill
☐ Damascus
☐ Albert Einstein
☐ Springbrook
☐ Thomas S. Wootton
☐ Gaithersburg
☐ Walter Johnson
☐ John F. Kennedy
☐ Richard Montgomery
☐ Paint Branch
☐ Wheaton
☐ Poolesville
☐ Rock Terrace
☐ Rockville
☐ Seneca Valley
☐ Sherwood
☐ Walt Whitman

I understand that my name and interest profile information listed on the reverse of this sheet will be included in the Connection Resource Bank.

Name _____ Date _____ (MONTH) (DAY) (YEAR)

CONTINUED ON OTHER SIDE

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Connection Resource BANK

INTEREST PROFILE

Please mark the appropriate places to tell us how you would like to be involved with Montgomery County Public Schools.

☐ SPEAKER	a person who discusses, illustrates or demonstrates a predetermined topic with a small or large group of individuals on an occasional basis at school.
☐ TUTOR	a person who instructs an individual or small group of students on topics or concepts that need reinforcement or helps on a regular basis at school.
☐ MENTOR	a person who discusses a topic; suggests reading materials, ideas for further work or other resources; and may serve as a role model by working with a student by telephone or in person on a regular basis either at school or the work site.
☐ CONSULTANT	a person who provides professional advice or services to an individual or group on a topic, program or project (e.g. a science fair project) in person or by telephone on an occasional basis for the duration of the project.
☐ JUDGE	a person with sufficient knowledge to decide on the merit of a project, contest entry, or activity for a competition on an occasional basis, usually at school.
☐ OCCUPATIONAL INTERVIEW	a person who provides students with information about a particular career or occupation in a structured interview at the work site or at school during a career day.
☐ ON-SITE SPONSOR	a person who provides supervision for students at the work site for short term (shadowing) or long term (internship) experiences.

Briefly describe the specific expertise you are willing to share or topic you are willing to discusss.

_____

_____

_____

_____

_____

The information you have provided will be entered into our resource bank database. Since all bookings are made by the resource bank coordinator, privacy of information is assured. Only when a resource has agreed to a specific commitment will the requesting teacher be given a contact phone number so that plans can be shared.

Please return this form to: **Connection Resource Bank**
Judith Messitte, Resource Bank Coordinator
Montgomery County Public Schools
850 Hungerford Drive, Room 24
Rockville, Maryland 20850

Connection Resource BANK

COMPANY REGISTRATION FORM

The Connection Resource Bank is a database of volunteers from the Montgomery County community who have agreed to serve as resources for the students and teachers in Montgomery County Public Schools. To register with the resource bank, please complete this form and return to address indicated on reverse.

Company/Organization _____

Address _____

_____

Number of Employees: ☐ Under 10; ☐ 10-49; ☐ 50-99 ☐ 100+

Business Hours _____

Contact Person _____

Title _____ Phone (____) _____

Describe your business briefly, including the occupational areas of your staff:

Our company ☐ does ☐ does not have a policy that enables personnel to be released during work hours to volunteer for the following activities at a Montgomery County public school:

- ☐ Tutor
- ☐ Mentor
- ☐ Consultant
- ☐ Judge
- ☐ Occupational Interview
- ☐ Student Internship/Job
- ☐ Shadow Experiences
- ☐ Student Field Trip
- ☐ In-depth Tour
- ☐ Teacher Opportunities
  - ☐ School Year
  - ☐ Summer

☐ **Our company can publicize the need for volunteers.**

CONTINUED ON OTHER SIDE

Describe briefly any training, research, or work experience available for teachers or students:

☐ **Our company can furnish speakers.**
The accompanying course list will help you identify topics.

Speakers	Topic

Our company can supply information/materials in the following categories:

- ☐ Special Library
- ☐ Reports
- ☐ Audiovisuals
- ☐ Equipment and/or Supplies
- ☐ Database
- ☐ Brochures
- ☐ Award or Competition
- ☐ Computer Bulletin Board

Our company prefers to have all requests made:

- ☐ Through our main contact
- ☐ Directly to individuals who volunteer

This information will go into the central computer register. We will let you know when we give your name and phone number to teachers who request help in your area of interest.

Please return this form to: **Connection Resource Bank**
Montgomery County Public Schools
651 Great Falls Road, Room 11
Rockville, Maryland 20850

Phone: (301) 762-6192

SHADOW PROGRAM	a short version of an internship, usually one day
FIELD TRIP	a group visit to a facility to learn about the site and its services
IN-DEPTH TOUR	a behind-the-scenes tour not normally available to the public led by an informed resource person
SPECIAL LIBRARY	a unique collection of subject-related material not normally available to the public
COURSE/SEMINAR CONFERENCE	organized learning opportunities open to students under specific conditions

TEACHER OPPORTUNITIES

GRANTS AND AWARDS
TRAINING
SUMMER JOBS AND INTERNSHIPS
CONFERENCES/SEMINARS
RESEARCH

Montgomery County Public Schools
651 Great Falls Road, Room 11
Rockville, Maryland 20850
(301) 762-6192

Connection Resource BANK

RESOURCE DESCRIPTIONS

PERSONNEL

SPEAKER	a person who discusses, illustrates, or demonstrates a predetermined topic with a small or large group of individuals on an occasional basis at school
TUTOR	a person who instructs an individual or small group of students on topics or concepts that need reinforcement on a regular basis at school
MENTOR	a person who discusses a topic; suggests reading materials, ideas for further work or other resources; and may serve as a role model by working with a student by telephone or in person on a regular basis either at school or the work site
CONSULTANT	a person who provides professional advice or services to an individual or group on a topic, program or project (e.g. a science fair project) in person or by telephone on an occasional basis for the duration of the project
JUDGE	a person with sufficient knowledge to decide on the merits of a project, contest entry, or activity for a competition on an occasional basis, usually at school
OCCUPATIONAL INTERVIEW	a person who provides students with information about a particular career or occupation in a structured interview conducted by the student at the work site or at school during a career day
ON-SITE SPONSOR	a person who provides supervision for students at the work site for short term (shadowing) or long term (internship) experiences

INFORMATION/MATERIALS

INSTRUCTIONAL	materials presented in audio/visual or written form that provide information on specific topic
SURPLUS EQUIPMENT/ DONATIONS	goods and materials that may be loaned or donated for instructional or other purposes, either on or off the owner's site
DATA BASE/ ELECTRONIC BULLETIN BOARD	library of information that can be electronically transmitted; electronic information exchange
AWARDS, COMPETITIONS/ OR SCHOLARSHIPS	recognition that is earned by developing or presenting a project or paper according to rules or guidelines; financial assistance for students
PROJECTS/ PAPERS	a written account of a detailed investigation on a specific topic, concept or activity

SITE RESOURCES

STUDENT INTERNSHIP	an unpaid supervised experience to increase an individual student's understanding of how an organization functions and the requirements of a particular occupation. Internships can be for 5 to 32 hours per week for 6 to 18 weeks.

CONTINUED ON OTHER SIDE

Montgomery County Public Schools

Mathematics Courses and Topics

(Subject Code M)

M0100
Math 9
01 Area
02 Decimal
03 Divisibility
04 Estimation
05 Equation
06 Exponent
07 Factor
08 Fraction
09 Geometric Terms
10 Graph
11 Integer
12 Mean
13 Median
14 Percent
15 Perimeter
16 Proportion
17 Ratio
18 Statistics
19 Volume
20 Whole Number

M0200
Introduction to Algebra
01 Decimal
02 Factor
03 Fraction
04 Integer
05 Linear Equation
06 Percent
07 Polynomial
08 Proportion
09 Radical
10 Ratio
11 Similar terms
12 Whole number

M0300
Applications of Mathematics
01 Area
02 Banking
03 Data
04 Equation
05 Formula
06 Graph
07 Interest
08 Loan
09 Mean
10 Measurement Systems
11 Median
12 Mode
13 Percent
14 Perimeter
15 Proportion
16 Ratio
17 Volume
18 Wage

M0400
Algebra 1
01 Algebraic Fraction
02 Equation
03 Factor
04 Graph
05 Inequality
06 Integer
07 Irrational Number
08 Linear Programming
09 Polynomial
10 Properties
11 Radical
12 Rational Number
13 Real Number
14 Set
15 System of Equations

M0500
Trigonometry
01 Amplitude
02 Angle Measurement
03 Angular Velocity
04 Applications of Trig Functions
05 Arc Length
06 Circular Function
07 Degree
08 DeMoivre's Theorem
09 Harmonic Motion
10 Identity
11 Phase Shift
12 Polar Form
13 Radian
14 Trigonometric Equations
15 Wrapping Function

M0600
Geometry—Honors Geom.
01 Area
02 Circle
03 Circumference
04 Congruence
05 Coordinate Geometry
06 Deduction
07 Euclidean Geometry
08 Geometric Constructions/Loci
09 Geometric Relationships
10 Induction
11 Logic
12 Mathematical Systems
13 Methods of Proof
14 Non-Euclidean Geometry
15 Parallelism
16 Perpendicularity
17 Perimeter
18 Polygonal Region
19 Pythagorean Theorem
20 Reasoning
21 Similarity
22 Solid Figures
23 Tautology
24 Truth Table
25 Volume

M0700
Algebra 2
01 Circle
02 Complex Number
03 Conic Section
04 Directrix
05 Eccentricity
06 Ellipse
07 Equation
08 Exponent
09 Factor
10 Focus
11 Function
12 Graph
13 Hyperbola
14 Inequality
15 Logarithm
16 Parabola
17 Polynomial
18 Radical
19 Real Number
20 Relation
21 Solutions of Equations
22 System of Equations

M0800
Advanced Algebra
01 Binomial Theorem
02 Combination
03 Determinant
04 Exponential Function
05 Function
06 Inverse Relationship
07 Logarithmic Function
08 Mathematical Induction
09 Matrix
10 Permutation
11 Probability
12 Relation
13 Roots of Equation
14 Sequence
15 Series
16 System of Equations

M0900
Probability and Statistics
01 Bayes Theorem
02 Central Tendency
03 Combination
04 Confidence Interval
05 Data
06 Distribution
07 Experiment
08 Hypothesis
09 Interpretation of Data
10 Permutation
11 Probability
12 Rules of Probability
13 Sample
14 Statistical Inference
15 Statistics
16 Test statistic

M1000
Elementary Functions
01 Applications
02 Binomial Theorem
03 Combination
04 Composite Function
05 Exponential Function
06 Function
07 Graph
08 Inverse Relation/Function
09 Limits
10 Logarithmic Function
11 Mathematical Induction
12 Permutation
13 Probability
14 Relation
15 Sequence
16 Series

M1100
Analytic Geometry
01 Circle
02 Conic Section
03 Coordinate Systems
04 Determinant
05 Direction Cosine
06 Directrix
07 Distance
08 Eccentricity
09 Ellipse
10 Equation
11 Focus
12 Hyperbola
13 Matrix
14 Parabola
15 Parameter
16 Polar
17 Rotation
18 Quadric Surface
19 Surface of Revolution
20 Vector

M1200
Calculus
01 Acceleration
02 Applications
03 Area
04 Center of Mass
05 Continuity
06 Critical Point
07 Derivative
08 Differentiation
09 Equation
10 Force
11 Fund. Theorem of Calculus
12 Hyperbolic Function
13 Integration
14 l'Hospital Theorem
15 Limit
16 Mean Value
17 Rolle's Theorem
18 Sequence
19 Series
20 Vector
21 Velocity
22 Volume
23 Work

M1300
Consumer Mathematics
01 Advertising
02 Banking
03 Bond
04 Budget
05 Checkbook
06 Consumer
07 Credit
08 Data
09 Decision Making
10 Discounts
11 Fraud
12 Graph
13 Housing
14 Income
15 Insurance
16 Loan
17 Monetary System
18 Mortgage
19 Price
20 Saving Account
21 Social Security
22 Stock
23 Tax
24 Time Zone
25 Transporation
26 Utility
27 Wage

Montgomery County Public Schools

Science Courses and Topics

(Subject Code S)

S0100
Anatomy and Physiology
01 Cell Specialization
02 Skeletal System
03 Muscular System
04 Nervous System
05 Sense Organs
06 Food Chemistry
07 Digestive System
08 Respiratory System
09 Circulatory System
10 Integumentary System
11 Excretory System
12 Endocrine System
13 Reproductive System
14 Heredity

S0200
Applied Science
01 Transportation Conveyances
02 Household Mechanical Appliances
03 Electricity
04 Individual Study in Physical Science
05 Careers in Physical Science
06 Physiology and Health
07 Household Products
08 Life Science for Personal Use
09 Individual Study in Life Science
10 Careers in Life Science

S0300
Biology 1
01 Cytology
02 Reproduction
03 Genetics
04 Scientific Evolution
05 Taxonomy
06 Microbiology
07 Anatomy and Physiology of Plants
08 Anatomy and Physiology of Animals
09 Human Body
10 Behavior
11 Ecology

S0400
Biology AP
01 Unity of Life
02 Cellular Energetics
03 Genetics
04 Diversity of Life
05 Scientific Evolution
06 Ecology

S0500
Chemistry 1
01 Classification and Organization of Matter
02 Atomic Theory, Periodicity, and Radioactivity
03 Mole Concept
04 Heat and Molecular Motion
05 Chemical Bonds and Properties of Matter
06 Thermodynamics
07 Reaction Kinetics
08 Solutions and Solubility
09 Acids, Bases, and Salts
10 Oxidation-Reduction and Electrochemistry
11 Carbon and Its Compounds

S0600
Chemistry AP
01 Atomic Theory
02 Chemical Bonding
03 Phases of Matter
04 Solutions
05 Types of Reactions and Equations
06 Equilibrium
07 Reaction Kinetics
08 Thermodynamics

S0700
Earth Science
01 Stellar Astronomy
02 The Solar System and Its Exploration
03 The Earth and Its Motions
04 The Earth's Atmosphere
05 Minerals and Their Origins
06 Petrology
07 Weathering and Erosion
08 Oceanography
09 Structural Geology
10 Historical Geology

S0800
Environmental Science
01 Energy Flow
02 Interrelationships of Biology, Geology, and Chemical Cycles
03 Nature of Ecosystems
04 Population Studies and Environmental Pollution
05 Organization and Dynamics of Ecological Communities
06 Urban and Nonurban Land Use
07 Urban and Nonurban Water Use
08 Nonrenewable Natural Resources
09 Energy Resources and Substitutes
10 Food Resources and Population

S0900
Horticulture Science
01 Plant Anatomy and Physiology
02 Careers in Horticulture
03 Growth Conditions
04 Plant Propagation
05 Control of Diseases, Weeds, and Pests
06 Greenhouse Management
07 Plant Identification
08 Soils and Their Preparation
09 Crop Plants
10 Lawns
11 Landscaping

S1000
Lab Science
01 Physical Measurement
02 Force, Motion, and Simple Machines
03 Introductory Chemistry
04 Organic Chemistry
05 Environmental Studies

S1100
Physical Science
01 Measurement Skills
02 Atomic Structure
03 Chemical Formulas and Equations
04 Classification of Chemical Substances
05 Radioactivity
06 Organic Chemistry
07 Vector Analysis
08 Force and Motion
09 Work, Energy, and Power
10 Thermal Energy
11 Wave Motion and Sound
12 Light and Optics
13 Electricity and Magnetism

S1200
Physics 1
01 Vector Mathematics
02 Kinematics
03 Dynamics
04 Energy
05 Momentum
06 Thermodynamics
07 Electricity and Magnetism
08 Waves
09 Modern Physics

S1300
Physics AP
01 Kinematics
02 Newton's Laws of Motion
03 Work, Energy, and Power
04 Systems of Particles-Statics
05 Rotational Motion
06 Oscillations and Gravitation
07 Electrostatics
08 Electric Current and Circuits
09 Capacitance and Capacitors
10 Magnetism

Connection Resource BANK

EVALUATION OF RESOURCE

Please let us know if the resource we booked met your expectations. Return of this form will assure your next booking. Just drop this form in the pony addressed to Connection Resource Bank, Room 11, Julius West Middle School. We appreciate the feedback as it enables us to better meet your needs.

Teacher's Name _____ Title _____

School _____ Course _____

Topic _____ Date Used _____

Type of Resource (check one):

- ☐ Personnel
  Name _____
- ☐ Information/Materials
  Specify _____
- ☐ Site Resource
  Specify _____
- ☐ The presentation/resource did not take place.

Number of students involved _____

Was the topic adequately covered?

☐ Yes ☐ No

Was the presentation/resource appropriate for the age level of the group?

☐ Yes ☐ No

Did the group find the presentation/resource interesting?

☐ Yes ☐ No

Would you recommend this presentation/resource to another teacher?

☐ Yes ☐ No

Please write additional comments below or on the back.

An Air Force captain (top) describes her job to students at Takoma Park IS; (above) a meteorologist explains the forces of a storm to another class.

MCPS 'matchmaker' brings students, experts together

Some matches are made in heaven and some are made in the Office of Volunteer Services where Judy Messitte matches teachers' requests for speakers, mentors and tutors in science and mathematics with more than 1,400 volunteer experts in the database of the Connection Resource Bank.

Messitte, coordinator of the bank, also arranges field trips for students and provides other educational services.

Supported by MCPS and the Montgomery Education Connection, a nonprofit foundation that serves as a link between businesses and the school system, the Connection Resource Bank is entering its second year of operation. More than 10,000 students have benefited from the expertise of members of the business and scientific communities who have been volunteer resources. Through the bank, 381 people have come to the schools or invited students to visit their businesses and laboratories.

During the summer, the bank provided many speakers who gave presentations to sixth grade students in the Middle Start program at Montgomery College and to students at Banneker JHS. The bank also provided several experts who shared their knowledge and inventions with a group of gifted/learning disabled students at Tilden IS, whose summer program focused on creative communication. Several internship placements and mentoring experiences were arranged by the bank during July and August.

The newsletter, *Of Interest*, published monthly October through May,

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More than 10,000 students have benefited from the expertise of members of the business and scientific communities who have been volunteer resources.

informs MCPS teachers about the resources available. *Of Interest* is supported by an Excellence in Education award from the U.S. Department of Education to Paint Branch HS, one of the pilot schools for the bank.

Requests to the bank have run the gamut of topics. One student needed "a mentor who has a laboratory where I can work on a project on the effects of anabolic steroids on the muscle mass growth in active and sedentary lab animals." The bank provided Allan Goldfarb from the University of Maryland, whose specialty is exercise biochemistry.

A student who wanted to study the phenomenon of boomerangs was matched with Col. Bevan Brown of the American Kite Flyers Association.

Field trips arranged by the bank include visits to Gallaudet University, the National Bureau of Standards and the Washington Children's Museum.

Archeologists, solar specialists, bankers, physicists, writers, engineers, microbiologists and statisticians have brought the practical side of science and mathematics into the classrooms.

Messitte is booking requests for this year. The Connection Resource Bank is housed at Julius West MS and can be reached by dialing 762-6192. □

The intracacies of polishing a stone draw a Stedwick ES student and an expert together at a gem and mineral show, a field trip arranged by the bank.

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EXAMPLES OF SECONDARY RESOURCE BANK REQUESTS AND BOOKINGS

Request:
"I want a mentor to help me find out how the salinity of water affects the reproduction of crustacea."
The Bank provided:
Dr. Manning, from the Department of Molluscs and Crustacea in the Smithsonian Natural History Museum.

Request:
"I need a mentor for guidance in the designing of an experiment using right brain teaching techniques; a teacher or a person working in a neurological department."
The Bank provided:
Dr. Ida Baron, Director of Neuropsychology from Georgetown University.

Request:
"I need a mentor to help me make a hydrometer."
The Bank provided:
Cindy Thorpe of the National Weather Service.

Request:
"I need a mentor who has a laboratory where I can work on a project on the effects of anabolic steriods on the muscle mass growth in active and sedentary lab animals."
The Bank provided:
Dr. Allan Goldfarb from the University of Maryland whose specialty is exercise biochemistry. He had a laboratory that he agreed to make available.

Request:
"I need a mentor to guide an investigation of the hydrolysis process of starch storage in the germination stages of 3 plant types."
The Bank provided:
Dr. Jerry Cohen from the Department of Agriculture whose specialty is plant hormones.

Request:
"I want to study the phenomenon of boomerangs."
The Bank provided:
Col. Bevan Brown of the American Kite Flyers Association.

Request:
"I need a mentor to guide me in designing and constructing an experiment which deals with observing the effects of different sound frequencies on animals that live in different environments."
The Bank provided:
Dr. Robert Dooling from the University of Maryland psychology department whose specialty is animal behavior.

Request:
"I need a mentor to guide me in a project examining the role of yeast in fermentation."
The Bank provided:
Dr. Robert Gherna, Head of Bacteria at the American Type Culture Collection.

The following comments were written by MCPS Teachers/Specialists on the Connection Resource Bank evaluation forms returned to the Bank Coordinator after each booking has taken place. They reflect teacher/parent/student enthusiasm at the elementary/secondary/special program levels.

"(He) was excellent. He had parents commenting how much their kids enjoyed his demonstration." Gaithersburg E.S.

"Very informative and interesting to 5th grade. Supported the curriculum." -Brookhaven E.S.

"He was well prepared, enthusiastic and genuinely interested in sharing his experiences with the students."
-Banneker J.H.S.

"Fantastic experience for all. The people were wonderful. Experiences abound. Thank you, Judy -- this one was worth every minute you have put into trying to get it going."
-Field Trip, Ritchie Park E.S.

"(He) offered his services to my students as a consultant for their projects. He was very helpful to individual students and was well received." -Magnet Program, Blair H.S.

"Students were fascinated by demonstration on liquid chromatography. Good female, minority role model."
-Middle Start Program, Parkland J.H.S.

"(She) presented the material to the level of our students. She actively involved the whole class of children. We were all very pleased with her presentation." -Taylor Learning Center

"He even sent us additional information via the U.S. mail when he learned of the various interests of the group. It was great! Thank you again." -Highland E.S.

"Wonderful, fantastic *in-house* field trip."
-Flower Valley E.S.

"Please allow us to take this opportunity to express how important we believe your project to be. The Resource Bank is making resources from the public and private sector available to the teachers and students which, for lack of available contact time, would otherwise go untapped. In addition, having these individuals interact with teachers and children gives the volunteers from industry and government a view of the excellent work going on in classrooms across the county. The upshot of this is that our students are benefiting from the additional experiences in science...., and our schools are maintaining their sterling reputation in the public eye."
Area I Science Specialists

CONNECTION RESOURCE BANK

The following are examples of *science* requests for the fourth through sixth grade levels.

ENVIRONMENT -

Requested Topic: energy needs/alternatives in our environment.
Grade: 4-6 (Gifted and Talented)
Resource: Michael Bennett, Educational Coordinator, PEPCO
Background: Energy, electricity.

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Requested Topic: water pollution and its effect on life.
Grade: 4
Resource: Ralph E. Architzel, Environmentalist, U.S. Nuclear Regulatory Commission.

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Requested Topic: recycling paper and cans.
Grade: 4
Resource: Sheila Cogan, Montgomery County Division of Environmental Planning and Monitoring.
Background: Environmental issues, i.e. recycling paper and cans.

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Requested Topic: energy pollution.
Grade: 4
Resource: Rita Gerharz, Site Supervisor, Montgomery County Conservation.
Background: Works on MC environmental community projects. Teaching certificate with a degree in biology.

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Requested Topic: pollution in the Chesapeake Bay.
Grade: 4
Resource: John Catena, Science Policy Analyst, NOAA-National Ocean Service.

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Requested Topic: endangered species.
Grade: 4-6
Resource: Nat Williams, Director of Government Relations, Nature Conservancy.
Background: Conservation. Nature Conservancy seeks preservation of rare and endangered species through land conservation.

UNIVERSE & CHANGE -

Requested Topic: paleontology
Grade: 5
Resource: Raymond Rye, Information Officer, Smithsonian Institution.
Background: Museum Specialist - paleobiology, historical geology. Gives presentations on dinosaurs, early traces of life, earthquakes.

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Requested Topic: Difference between chemical & physical change.
Grade: 4
Resource: Isidore Adler, Retired Prof. of Chemistry/Geology, University of Maryland .
Background: Astronomy/Space. Developed TV series, "Planetary Exploration - A Retrospective Look."

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Requested Topic: rocks.
Grade: 5
Resource: Gladys Fuller, Smithsonian Institution.
Background: Tour guide for the Smithsonian Natural History Museum (Minerals and Geology). Fossils.

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Requested Topic: ever-changing earth (earthquakes).
Grade: 4 & 5
Resource: Harold Banks, Natural History Museum, Smithsonian Institution, Office of Education.
Background: Paleontology, mineralogy, earthquakes, volcanoes. Teaches classes in mineral & rock identification for Smithsonian Resident Program.

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Requested Topic: mineral show, field trip.
Grade: 5
Resource: Diane Beckman, Gem, Lapidary & Mineral Society of Montgomery County, Inc.
Background: School presentations. Coordinates field trips to the annual show (3rd weekend in March) which is open to school groups on Friday. Hands-on exhibits. Workshop on polishing cabecheon.

Requested Topic: Pan for gold at Outdoor Education site (Anglers).
Grade: 6
Resource: Diane Beckman

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Requested Topic: movement of heavenly bodies - stars.
Grade: 6
Resource: Peter Giovanoni, Graduate Student, Astronomy Department, University of Maryland.
Background: Taught introductory astronomy at the University of Maryland.

Requested Topic: matter - solid, gas, liquid (simple changes).
Grade: 4
Resource: Ann Benbow, American Chemical Society.
Background: Coordinates Elementary School Program for ACS.

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THE HUMAN BODY -

Requested Topic: microbiology.
Grade: 4-5 (Gifted & Talented)
Resource: Ruth Simione, Education Consultant, American Type Culture Collection.
Background: Arranges speakers, tours, field trips, judges for science fair, research library, greenhouse. Former high school science teacher. Presentations include "Microbiology Grab Bag" and "The Human Hotel."

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Requested Topic: body systems.
Grade: 5
Resource: Barbara Glenfield, Kaiser Permanente.
Background: Physical Therapy Supervisor.

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Requested Topic: cells & the human body - both plants & animals.
Grade: 5 (Gifted & Talented)
Resource: James Saunders, Research Biochemist, U.S. Department of Agriculture.
Background: Plant physiologist, BA in Zoology, PhD in Botany. Post-doctoral in biochemistry, minor in chemistry & microbiology. Research in genetics & molecular biology, electrofusion of cells.

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Requested Topic: how the scientific process is used in biological science.
Grade: 5/6
Resource: Sandra Frattali, Safeguards Analyst, U.S. Nuclear Regulatory Commission.
Background: Math, chemistry. Taught statistics and calculus. Background in biology.

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SUBSTANCE ABUSE -

Requested Topic: "Clowns Don't Smoke"
Grade: 4
Resource: Irene Spector, American Lung Association
Background: Travels to schools dressed as clown to speak and show video tape entitled "Clowns Don't Smoke." (Tape runs 15 min) Video tape prepared for the American Lung Association.

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Requested Topic: alcohol and drug abuse.
Grade: 6
Resource: Frankie Engleking, Alcohol and Drug Prevention Specialist for Community Psychiatric Clinic.
Background: Private consultant to MCPS, Project "Smart Teacher Trainer" for State of Maryland Department of Health Education.

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Requested Topic: smoking.
Grade: 6
Resource: Dorothea Nullmeyer, American Lung Association.
Background: Speaker who shows the film, "Feminine Mistake," illustrating the effects of cigarette smoking.

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Additional excellent resources from the Addiction Treatment Center at Suburban Hospital are as follows:

Laura Sharon, Counselor
Beth Kane, Head Counselor for Outpatient Treatment Center

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FLIGHT -

Requested Topic: airport, field trip.
Grade: 5/6 (Gifted and Talented)
Resource: Sgt. Charles Michelson, Andrews Air Force Base.
Background: Field trip includes choice of the following tours: fighter planes, transport planes, helicopters, cockpit tours of transport aircraft or helicopter, FAA Tower, and viewing of the Presidential Airplane.

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Requested Topic: aviation.
Grade: 4-6
Resource: Tracy Prior, Pilot, American Airlines.
Background: Women in Aviation. Flight Engineer.

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Requested Topic: model airplane demonstration.
Grade: 4-6
Resource: Alan Schanzle, Aeronautical Engineer.
Background: PhD in celestial mechanics-motion study of heavenly bodies, model airplane demonstration.

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Requested Topic: piloting.
Grade: 5/6
Resource: James Moore, Goddard Space Flight Center.
Background: Project Manager for space telescope. Owner of private airplane.

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Requested Topic: aviation, field trip.
Grade: 5/6 (Gifted and Talented)
Resource: Ben Miles, College Park Airport Museum.
Background: Manager of airport museum, conducts tours of small museum which includes aviation memorabilia, 1909 film of Wilbur Wright flight, hanger and air field.

Resource: Gary James, College Park Airport.
Background: Arranges field trip of flight training center at College Park Airport. Tour includes pilot shop & demonstration of simulation training.

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Requested Topic: history of flight.
Grade: 5/6 (Gifted and Talented-POK)
Resource: Meg Renton, Systems Control Technology.
Background: Aeronautical engineer with a space background. Works in the air traffic control division of SCT, a company involved in program development for the military, Defense contracts.

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Requested Topic: opportunities in the Air Force.
Grade: 5
Resource: Gretchen Anderson
Background: Public relations - information specialist with the Air Force. Career talks.

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Requested Topic: space program.
Grade: 4-6 (Young Astronaut Club)
Resource: Joseph Buck, Continental Telegraph Company.
Background: Senior program manager for tracking and data relay satellite system program of CONTEL. Does communication satellite tracing and studies ground system for space program.

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Requested Topic: history of flight, field trip.
Grade: 4
Resource: National Air & Space Museum.
Background: Educational tours: Exploring the Planets (3-6) Wed-Fri; History of Flight (4-12) Tues & Thurs; Exploring Space (4-12) Wed & Thurs; Looking at Earth (4-12) Tues. and Thurs.

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Requested Topic: observatory, field trip.
Grade: 4-6
Resource: Astronomy Department, University of Maryland.
Background: Group visits include talks, slide show and viewing telescope.

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MAMMALS -

Topic Requested: hump back whales.
Grade: 4 (Gifted and Talented)
Resource: Peggy Addes, Department of Zoology, University of Maryland.
Background: Research on whales. Specialist in hump back whales.

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Topic Requested: animal care and treatment.
Grade: 4-5 (Gifted and Talented)
Resource: Martha Hutchinson, North Rockville Veterinary Hospital.
Background: Veterinary medicine.

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Topic Requested: animals and birds.
Grade: 4
Resource: Sam Lyon, Park Naturalist, Maydale Nature Center.
Background: Nature oriented craft activities, demonstrations, slide presentations, insect program (2-6 grade); Indian programs (2-5 grade). Nature Center also provides speakers in the following areas: snakes of the Eastern U.S.A., mammals of Maryland, and amphibians.

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Topic Requested: animal communication.
Grade: 5/6 (Gifted and Talented)
Resource: Robert Dooling, Department of Psychology, University of Maryland.
Background: Research in animal behavior.

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850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

Teachers—
Check it out!

Connection
Resource
BANK

The Investment that Pays...

Have you ever wondered...

- Where can I find someone for my pre-calculus students to shadow so they will understand how calculus can help them in engineering?
- Where can I get panel members to discuss how mathematics influenced their careers?
- Where can I find black and female scientists as role models for our career day?
- Where can I get a tutor to work with a small group of students who need help to pass the Functional Math Test?
- Where can I find help for a student project on blood protein analysis—a subject I don't know much about?
- How could I take two chemistry students to an international conference?

If you are a science or mathematics teacher in the Montgomery County Public Schools, here are some answers for you! It's the Montgomery County school system Connection Resource Bank, a computer data base that links us with the resources of the business community.

The Montgomery Education Connection Resource Bank

is your link to community resources to enrich instruction and provide exciting, hands-on educational opportunities for your students and yourselves in the classroom and in the community. You can use the bank's computer data base to:

- Browse by Curriculum Topic
- Browse by Type of Resource
- Book a Resource
- Initiate a Search for Resources Not Listed

The computer system is easy to use—even someone with little computer experience can operate it with ease. And, since every school building will eventually house its own equipment, you'll have convenient access. A full-time system operator provides the Connection Resource Bank with accurate, updated information. Teacher requests will dictate what kinds of resources should be added to the data bank. The bank's success depends on your participation. Teachers who use the CRB will receive a handy user's guide as well as a newsletter with information on what's new in the bank.

The Connection Resource Bank can find

Personnel—
speakers
tutors
mentors
consultants
judges

Materials—
instructional aids
surplus equipment
data bases
awards
scholarships

CRB

Site Resources—
student internships
shadow programs
field trips
tours
seminars

Teacher Opportunities—
grants & awards
summer jobs
internships
conferences
seminars

The Connection Resource Bank is sponsored by

The Montgomery Education Connection
a non-profit foundation
to develop
business support
for
The Montgomery County Public Schools

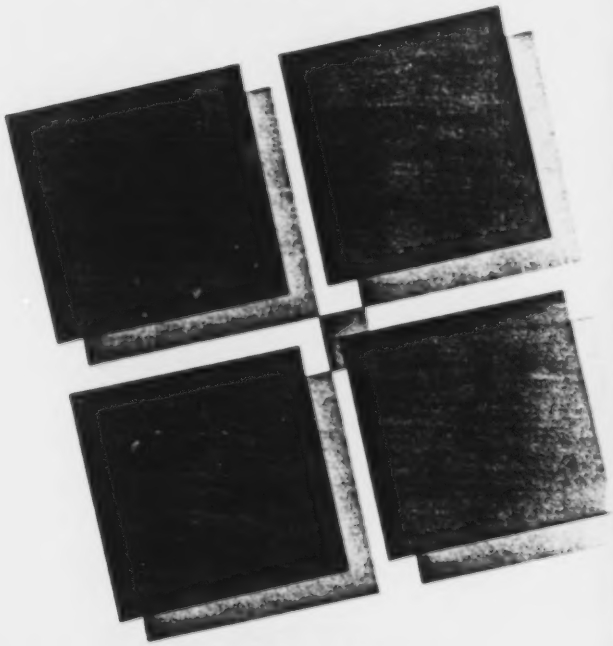
for further information contact:
Connection Resource Bank Coordinator
850 Hungerford Drive
Rockville, Maryland 20850
phone - 279-3125

Connection Resource BANK

The Montgomery Education Connection, Inc.

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

A commitment by your business is *very good* for your business



Connection Resource **BANK**

The Investment that Pays...

For the future of your business, ask yourself these vital questions.

How can I reach energetic young people to share my company's career possibilities and visions?

Can I have an impact on the quality of education in Montgomery County public schools?

Are my future employees and customers getting a good education?

Can my company's efforts improve the economic health of the county?

Here are your answers... and your opportunity.

We're the Montgomery County Education Connection Resource Bank . . . a computerized data base operated by the public schools that links business resources to the classroom. We're ready to help you enrich the learning experience of the county's students *and* help you play a direct role in educating your future employees and customers. Your business can help build our expanding Resource Bank that provides students with hands-on educational opportunities.

Through our Resource Bank you can make the expertise of *your* employees available to students and teachers countywide. We coordinate accurate, up-to-date information from participating business firms and issue a monthly newsletter informing teachers about available personnel, materials and site resources during the school year.

The Resource Bank, in short, allows you to involve your business in improving the quality of education for the children of your employees, your future employees and customers throughout Montgomery County. You become a partner in improving learning that leads to higher business productivity.

The Connection Resource Bank offers... and needs your help in providing...

Personnel
speakers
tutors
mentors
consultants
judges

Materials
instructional aids
surplus equipment
data bases
awards
scholarships

Site Resources
student internships
shadow programs
field trips
tours
seminars

Teacher Opportunities
grants and awards
summer jobs
internships
conferences
in-service training

Involve your business, yourself... a commitment that's easy, productive... an investment that pays.

Consider the dozens of skills your company could share with students in a partnership that fills resource needs such as those above. Decide how much time you and members of your firm can commit and select areas or topics of interest. You'll give the county's young people—and their teachers—experiences that the school system just can't duplicate.

Join us now! Simply fill out and mail the form .

YES, I'd like more information about joining the Connection Resource Bank.

____ Please call me at _____
(business phone)

____ Please send a registration form to

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Signature _____ Date _____

Mail to...
Connection Resource Bank Coordinator
651 Great Falls Road, Room 11
Rockville, MD 20850

Or, for even faster action, simply call . . . Connection Resource Bank Coordinator 762-6192

The Connection Resource Bank is sponsored by The Montgomery Education Connection, Inc. A non-profit foundation established to develop business support for the Montgomery County public schools.

MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland 20850

Connection Resource BANK

CONNECTION RESOURCE BANK
REQUEST FORM

INSTRUCTIONS: This request is for one resource for one class at a time. The request must be submitted three weeks in advance of the date needed. Send this form to the Connection Resource Bank, Room 11, Julius West M.S., via pony or call the Connection Resource Bank at 279-3929 with this information.

Teacher's Name: _____ (Last) _____ (First) Date: _____

Requester's Name: _____ (Last) _____ (First) Title: _____

School: _____ Phone: _____ _____

Grade: _____ Class Size: _____

Topic: _____

Resource Name: _____ ID#: _____ Phone: _____

Preferred Date: _____ 1st ; _____ 2nd ; _____ 3rd

Preferred Time: _____ 1st ; _____ 2nd ; _____ 3rd

Confirmed Date: _____ Confirmed Time: _____

MCPS Form 311-61, Revised July 1988

Montgomery County Public Schools
Rockville, Maryland

Connection Resource BANK

CONNECTION RESOURCE BANK
SEARCH FORM

Instructions: Send this form to the Connection Resource Bank, Room 129 CESC via pony or call the Connection Resource Bank at 279-3125 with this information.

School _____ Date _____ _____ _____

Teacher
(Please Print) _____
Last First M.I.

Grade _____ Subject _____ Topic _____

I want (describe resource): _____

So that (describe anticipated result): _____

Date Needed _____ _____ _____ Time: From _____ To _____
DA MO YR

Alternate
Date Needed _____ _____ _____ Time: From _____ To _____
DA MO YR

103

Form 311-62, April 1986 **This is a multipart form. Remove copies before completing.**

PROJECT ATTACHMENT NUMBER 14

Maryland School Volunteer Program
conference notes about the Resource Bank.

Volunteer Partnerships

Preparing for the 21st Century

A Maryland State Conference
sponsored by

The Maryland School Volunteer Program

The Maryland State Department of Education

The Johns Hopkins University

with cooperation from

The Governor's Office on Volunteerism

A conference highlighting the diversity of volunteer programs including business, government, community, and parent partnerships in elementary through adult education

March 23, 1988 • 9:00 a.m.-3:30 p.m.

The Belvedere Hotel • Charles & Chase Streets • Baltimore, Maryland

4. The Montgomery Education Connection Resource Bank — Executive Suite

Montgomery County Public Schools
Judith Messitte
Judith Kramer

Facilitator: Bernard J. Sadusky

A computerized resource bank gives teachers access to people, places and things in the business community to enrich instruction for students. Presenters will discuss the development and continuous support of the bank by the nonprofit education foundation, The Montgomery Education Connection, Inc., and the use of the bank by teachers, as documented in the resource bank newsletter "Of Interest."

5. Panel: Utilities Resources — Executive Suite

Potomac Edison

C&P Telephone Company
Pat Kirk

Baltimore Gas and Electric
Elaine Urbanski

Facilitator: Jacqueline Lendsey

Representatives of local utility companies will discuss efforts to build collaborative programs with local school systems.

6a. Project ABC's To Success: Partners For Progress — Executive Suite

AT&T
Candace Humphrey

Baltimore County Public Schools Adult Education
JoAnn Murphy
Mary Ann Corley

Facilitator: Paula Hendricks

A unique partnership among AT&T, Baltimore County Public Schools Adult Basic Education Program, and local community colleges in helping literacy level adults improve their basic skills and acquire employability skills. This session will present an overview of the project from the initial press conference to volunteer recruitment and training and student success stories.

6b. IBM Remediation and Literacy Skills — Executive Suite

IBM
Kenneth J. Miller

This workshop will present the program IBM has designed to use computers to help students gain literacy skills.

STUDENTS AT RISK

7. The Reasoned Straight Program — Room 715

Maryland Office of Safety—Patuxent Institute
Martin E. Salisbury
An Inmate Instructor (TBA)

Facilitator: Maceo M. Williams

This workshop will be presented by inmates from Patuxent Institution. Participants will be given an overview of the Reasoned Straight Program and its main objectives. The purpose of the program is to present information, experiences, and guidance to students to help deter them from unlawful acts and criminal lifestyles.

MSVP

MARYLAND SCHOOL VOLUNTEER PROGRAM

RECEIVED APR 8 1988

April 7, 1988

Ms. Judith Kramer
Editor, OF INTEREST
Montgomery County Public Schools
651 Great Falls Rd.
Rockville, MD 20850

Dear Ms. Kramer:

On behalf of the Conference Planning Committee for the *Maryland State Conference, "Volunteer Partnerships: Preparing for the 21st Century,"* I wish to express appreciation for your excellent presentation, "The Montgomery Education Connection Resource Bank." Your willingness to share your time, energy and talent with the conference participants is a gift for which we are most grateful. Conference evaluations indicate that participants were very satisfied with the presentations at the conference and felt that the day was very worthwhile.

We thank you for your generous support in making this event a success.

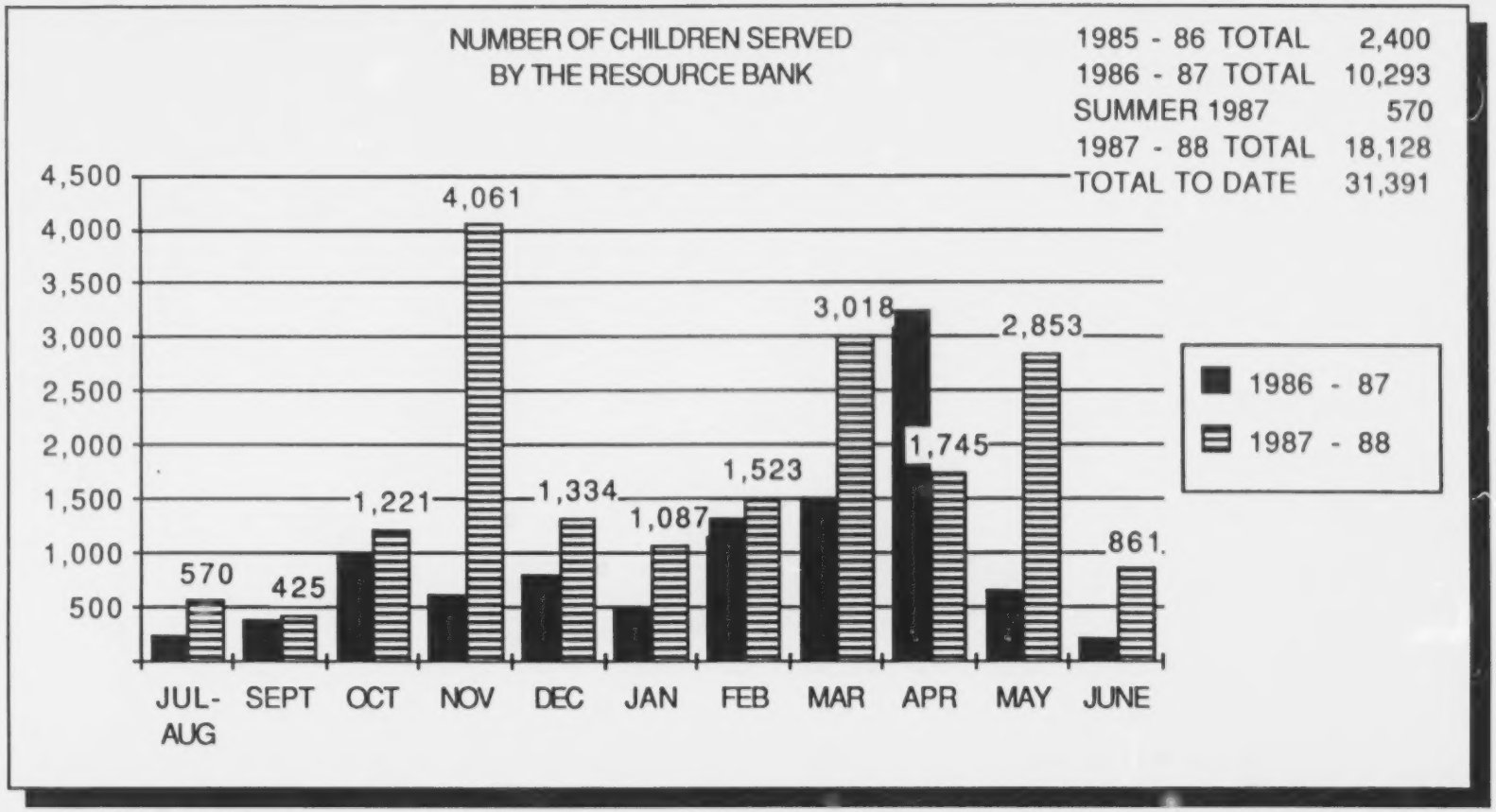
Sincerely,

James Slagle

James Slagle
President-Elect

PROJECT ATTACHMENT NUMBER 15

Charts showing number of children served monthly by the Resource Bank.


NUMBER OF CHILDREN SERVED
BY THE RESOURCE BANK
1985 - 86 TOTAL 2,400
1986 - 87 TOTAL 10,293
SUMMER 1987 570
1987 - 88 TOTAL 18,128
TOTAL TO DATE 31,391
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
570
425
1,221
4,061
1,334
1,087
1,523
3,018
1,745
2,853
861
1986 - 87
1987 - 88
JUL-AUG
SEPT
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUNE

NUMBER OF CHILDREN SERVED

	1986 - 87	1987 - 88	% INCREASE
JUL-AUG	250	570	128.0
SEPT	377	425	12.7
OCT	1,009	1,221	21.0
NOV	627	4,061	547.7
DEC	808	1,334	65.1
JAN	483	1,087	125.1
FEB	1,322	1,523	15.2
MAR	1,520	3,018	98.6
APR	3,261	1,745	-46.5
MAY	667	2,853	327.7
JUNE	219	861	293.2
TOTALS	10,543	18,698	77.3

PROJECT ATTACHMENT NUMBER 16

Sample correspondence received from administrators, specialists and students.

RICHARD MONTGOMERY HIGH SCHOOL
ROCKVILLE, MARYLAND 20852

OFFICE OF THE PRINCIPAL
762-6101

December 8, 1987

Ms. Judy Kramer
Connection Resource Bank
651 Great Falls Road, Room 11
Rockville, Maryland 20850

Dear Ms. Kramer:

Thank you so much for your presentation to our faculty on Monday, Dedcember 7. The Connection Resoure Bank has many valuable services to offer. I only hope that our faculty will take advantage of as many programs as they possibly can.

Thank you again for a fine presentation.

Sincerely,

Thomas E. Quelet
Principal

TEQ/pen

Copy to: Mrs. Priscilla Shoemaker

RECEIVED JUL 1 0 1987

June 29, 1987

William N. McDonald
Joseph Scallion
Subject Specialists, Science
Area 1 Administrative Office
Montgomery County Public Schools
11721 Kemp Mill Road
Silver Spring, Maryland 20902

Judith L. Kramer, Resource Specialist
Connection Resource Bank
Room 129
Carver Educational Services Center
Montgomery County Public Schools
850 Hungerford Drive
Rockville, Maryland

Dear Judy

Joe and I would like to express our thanks for the presentation to the Area 1 Science Liaisons on June 11. Your organized materials and use of specific annecdotes made the information about the Resource Bank meaningful and useful to these teachers. They, in turn, will be able to pass along the information to their staffs this coming fall.

We wish to let you know how much we feel the Resource Bank is doing for the students of the county. In particular, the newsletter that you edit has made the program visible to large numbers of teachers who otherwise might have missed out on the opportunity for their students. Teachers who have used the Bank have spoken to us of the positive reinforcement that it has given to their programs in science, as well as how important the contacts between members of the community and the schools have been.

We hope that we can continue to count on the program in the future and very much look forward to helping our Area 1 teachers make use of this resource next year.

Sincerely,

William N. McDonald

William N. McDonald

Joseph Scallion

Joseph Scallion

cc: Dr. Lancaster
Ms. Smith
Mrs. Heck
Area Supervisors

MAR 6 - 1987

Banneker Junior High
March 3, 1987

Dear Mrs. Kramer and Mrs. Messitte,

On behalf of all of my students who used the Resource Bank to locate mentors, I would like to thank you for bringing the services of the Bank to my attention and for all of the time you spent in locating the mentors. The help and guidance supplied by the mentors has been invaluable in helping the students to understand what scientific research is all about. Each of the students has contacted and thanked their mentors, but we would also like to say a special thanks to the two of you for making it all possible.

Sincerely,

Raymond E. Koelsch

Dr. Raymond E. Koelsch

Shannon Chauhan
Jenny Ethier
Michael Ubaldini
Brad Bazemore
Marc Feinstein
Fred Chan
Mare Bauer
Chris Isele
Amy Kramer
Chris Hobbs
Mike Creeger

PROJECT ATTACHMENT NUMBER 17

Sample of editor's correspondence with specialists.

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850
Telephone (301)

December 19, 1986

Gerard Consuegra
Elementary Science Specialist
Area 2 Administrative Office
Tuckerman Center
8224 Lochinver Lane
Rockville, Maryland 20854

Dear Gerry,

This is just to thank you for the time you spent with me going over the elementary science curriculum and pointing out areas of opportunity for the Connection Resource Bank to plug into the classroom programs.

I'm planning to try the approach you suggested in the February issue of "Of Interest," by selecting resources that can meet the specific curriculum objectives you pointed out in the second and third grades, i.e. "light and shadows" and "soil."

Thanks again for your demonstration of interest and for your help.

Sincerely,

Judy Kramer

Judy Kramer
Resource Specialist
Editor, "Of Interest"

PROJECT ATTACHMENT NUMBER 18

Montgomery County Public Schools' memo
to administrators regarding "Of Interest."

Management Memo

Montgomery County Public Schools, Rockville, Maryland

No. 29 - February 6, 1987

All Elem Prins	PRESCHOOL CONFERENCE (KINDERGARTEN ROUNDUP)	ACTION-2/23

Your Preschool Conference form listing the date(s) of your kindergarten roundup and the number of DIAL kits needed, if any, must be sent to Sarah Rice, CESC Rm. 258, by Feb. 23. This information will be included in the press release.

All Staff	EXECUTIVE ASSISTANT'S LOCATION	INFORMATION

Dr. Carl Smith, Executive Assistant to the Superintendent, is located in CESC Rm. 129, telephone 279-3145.

All School Staff	CONNECTION RESOURCE BANK NEWSLETTER	INFORMATION

Please check to see that copies of "Of Interest," the Connection Resource Bank monthly newsletter, are distributed in teachers' mailboxes.

All Media Specs Prins	PERIODICAL HOLDINGS LIST	INFORMATION

Media centers will receive a copy of the 1987 Professional Library Periodical Holdings List. Please discard the 1986 list. For more information, call the Professional Library, 279-3227.

All Elem Prins	REVISED SPECIAL EDUCATION PROCEDURES MEETING	INFORMATION

The meeting for reactions to proposed revisions in the special education placement procedures has been rescheduled for Thurs., Feb. 19, from 4-7 p.m. at Rock Terrace HS. Dinner (sandwiches) will be provided. This meeting was previously scheduled for Jan. 22 (see memo and attachments to principals dated Dec. 22). Please RSVP to Diane Tessier-Switlick, 279-3604, by Feb. 13.

All Prins	REMINDER	INFORMATION

The cutoff date for ordering textbooks with FY87 funds is March 17.

All Staff	CHANGES TO MCPS DIRECTORY	INFORMATION

Please make the following changes to your directory:

Name	Office Phone	Page
Dudley, James	279-3102	149
Finch, Brenda	"	153
May, Stephen	"	183
Robinette, Roger	"	200
Silvious, Stephen	"	207

PROJECT ATTACHMENT NUMBER 19

Memo to schools regarding distribution of "Of Interest."

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850

Telephone (301)

PLEASE PUT

A COPY OF

"OF INTEREST"

IN EVERY TEACHER'S

MAILBOX

EACH MONTH.

PROJECT ATTACHMENT NUMBER 20

Resource Bank forms and letters.

Connection Resource Bank
Data Card

1. Request Date:_____

2. Phone Contact:_____

3. Confirmed Date:_____

4. Hard Cy. Sent:_____

5. Evaluation Sent:_____

6. Letters Sent:

   Teacher:_____

   Resource:_____

7. Evaluation Rec'd.:_____

8. Thank You Sent:_____

9. On Report:_____

Connection Resource BANK

April 3, 1987

Mr. Thomas Callan
Planetarium Scheduler
National Air & Space Museum
Smithsonian Institution
Washington, D.C. 20560

Dear Mr. Callan:

This is to confirm that Ms. Lara Tekesh, a teacher at Rock Creek Valley Elementary School will be bringing a group of approximately sixty-five third and fourth grade students to your planetarium show on Thursday, May 14, 1987, 9:30AM. Should you need to contact Ms. Tekesh, her number is 460-8535.

Thank you for scheduling this appointment for the students of Rock Creek Valley Elementary School.

Sincerely,

Judith Messitte
Coordinator
Connection Resource Bank

JM:nb

Copy to:
Lara Tekesh

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

Connection Resource BANK

February 17, 1987

Dr. Joan Lunney
USDA, API
Building 1040, BARC-EAST
Beltsville, Maryland 20705

Dear Dr. Lunney:

Thank you for your recent visit to Ms. Phyllis Ayers' sixth grade science class at Diamond Elementary School. Through the Connection Resource Bank we are able to expand our students' exposure to the experience and expertise of the community. Contact with the world outside of the school environment always makes a difference in students' understanding of what they need to know. Your contribution to this effort is very much appreciated.

Thank you for sharing your time and wisdom with the students of Montgomery County Public Schools.

Sincerely,

Judith Messitte

Judith Messitte
Coordinator
Connection Resource Bank

JM:nb

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

THE CONNECTION RESOURCE BANK - Evaluation of Resource - Help Us Help You

Please let us know if the resource we booked met your expectations. Return of this form will asssure your next booking. Just drop this form in the pony addressed to CESC, Connection Resource Bank, Room 24. We appreciate the feedback as it enables us to better meet your needs.

Name:_____ Title_____

School:_____ Course_____

Topic:_____ Date Used_____

Type of Resource (check one): Number of children_____

( ) Personnel
Given name of person_____

( ) Information/Materials
Specify_____

( ) Site Resource
Specify_____

( ) Teacher Opportunities
Specify_____

( ) The presentation/resource did not take place.

Answer the following questions if applicable:

Was the topic adequately covered?
yes ( ) no ( )

Was the presentation/resource appropriate for the age level of the group?
yes ( ) no ( )

Did the group find the presentation/resource interesting?
yes ( ) no ( )

Would you recommend this presentation/resource to another teacher?
yes ( ) no ( )

If "no," explain briefly:_____

_____

_____

Additional comments:_____

_____

_____

CRBMEC - TO THANK CONTACT PERSON FROM MEC

Thank you for your willingness as a member of the Montgomery Education Connection to become the Connection Resource Bank's contact person for Sovran Bank.

If you are not already familiar with the Resource Bank, it is a database of more than 1,100 volunteers from the business and scientific communities who have agreed to act as resources for the students and teachers of Montgomery County. The Bank is supported by both the Montgomery Education Connection and the school system. More than 10,000 students this year have met with experts in all areas of business and science through use of the Bank.

By demonstrating the practical application of what students are learning, these volunteers have extended the classroom into the community. When students understand WHY they need to learn, WHAT they need to learn becomes easier to teach.

The Bank was created to provide an efficient method for sharing information. It offers the business community and the school system a simple mechanism through which to communicate needs. We are training your future employees and you are helping us to do the best job possible. We appreciate your contribution to the Connection Resource Bank.

_____

Judith Messitte, Coordinator
Connection Resource Bank

CONNECTION RESOURCE BANK POSTCARD TO SPEAKERS

This is confirm your engagement at _____a.m. on __(day)__,
_____(date)_____ at _____(school)_____ to speak to
_____(teacher)_____'s _____(grade)____ calss on
_____(topic)_____.

_____(scool)_____ is located at _____(address)_____
_____.
The school's phone number is _____.

If _____(teacher)_____ has not yet contacted
you, please call me at 762-6192.

Thank you for sharing your time and expertise with the students
and teachers of Montgomery County Public Schools.

_____
dy Messitte
Connection Resource Bank Coordinator

CONNECTION RESOURCE BANK POSTCARD TO SPEAKERS

This is to confirm your engagement at 10 a.m. on Monday, April 12, 1987, at Banneker Junior High School to speak to Dr. Raymond Koelsch's 9th grade honors science class on the properties of liquid nitrogen.

Banneker is located at 14800 Perrywood Drive, Burtonsville, Maryland. The school's phone number is 384-8800.

If Dr. Koelsch has not yet contacted you, please call me at 762-6192.

Thank you for sharing your time and expertise with the students and teachers of Montgomery County Public Schools.

_____

Judy Messitte
Connection Resource Bank Coordinator

CRBINTERN

CRB LETTER TO THANK RESOURCES WHO ACCEPTED INTERNS

I would like to thank you on behalf of the Connection Resource Bank and Montgomery County Public Schools for acting as a resource and allowing interns to gain experience by observing your expertise in the area of

_____.

Young people with a desire to move beyond the theory of the classroom and into the world of practical application benefit greatly from an internship. As a career-conditioning experience it is invaluable.

Thank you again for sharing your resources (expertise and experience) with our resources (inquiring young minds). It is our hope that the benefit is mutual.

_____

Judith Messitte, Coordinator

Connection Resource Bank

THANK YOU FOR REGISTRATION FORM

We have received your registration form and have included you as a resource in the Connection Resource Bank. Thank you for adding your knowledge and experience in the field of _____ to our database.

When students or teachers need help in your area of expertise, we will call you. In the past year, volunteer resources have enriched the learning of thousands of our students.

Thank you again for making this kind of sharing possible.

Judy Messitte

Connection Resource Bank Coordinator

THANK YOU FOR ACTING AS RESOURCE MANY TIMES

I would like to thank you on behalf of the Connection Resource Bank and Montgomery County Public Schools for the time and expertise you shared with us this year as a volunteer resource.

Your knowledge in the field of _____ helped our students understand the practical applications of what they were learning. When students understand WHY they need to know, WHAT they need to know becomes easier to teach.

Thank you again for sharing your resources (expertise and experience) with our resources (inquiring young minds). It is our hope that the benefit is mutual.

Sincerely,

Judy Messitte

Connection Resource Bank Coordinator

PROJECT ATTACHMENT NUMBER 21

"Teacher of the Month" articles and correspondence.

FOR IMMEDIATE RELEASE. JUNE 15, 1987

FOUR TEACHERS RECOGNIZED BY BUSINESS

Four Montgomery County Public School teachers have been named "Teacher of the Month" by the Montgomery Education Connection (MEC) for their creative and innovative use of business and community resources to help their students move beyond the theory learned in the classroom into the world of practical application.

Sponsored by the Montgomery Education Connection, a non-profit foundation of business leaders established to serve as a link between the schools and the business community, the new awards program began in February. The awards include a day of administrative leave for each teacher to visit a business or government agency that functions as a resource for the school system (with substitute funds provided by MEC), and a check of $100 for personal use.

Wilson Bascom, physics teacher at Wootton HS, has invited professors, business professionals, friends and former students to visit his classes to share their technical expertise. For the past two years he has initiated, planned, organized and run a county-wide physics meet in which more than 300 juniors and seniors from both public and private schools participated. Bascom also has been involved in the Summer Science program offered by Montgomery County. He planned a kind of traveling science classroom for 20 to 30 students who elect to participate in this non-credit summer science exploration. The all-day program lasts 3 to 4 weeks.

Nancy Peckerar, career coordinator at Paint Branch HS, has placed more

(more)

850 Hungerford Drive · Rockville, Maryland 20850 · 301-279-3391

than 440 students in internships during the last 10 years. Peckerar began the school-based internship program in 1977 with a class of 18 students. This year she has placed 58 interns. Although it is part of her job to use community resources, the awards committee felt that Peckerar has extended herself far beyond the formal job description. She volunteered her time to develop materials used in the Connection Resource Bank, a database maintained by the school system of more than 1,100 experts in the fields of science and mathematics available as resources to all Montgomery County teachers.

Rita Segerman, gifted and talented teacher at Weller Road ES, has tapped the business and scientific communities and provided her 80 students with a broad spectrum of experts from whom to learn. From the man who invented the "Wacky Wall Walker Spider" and spoke of being an entrepreneur to an extraordinary young legal researcher who was blinded at the age of six and went on to become a completely independent adult who travels on Metro, takes college courses and even brought her knitting to Segerman's class, Segerman's network of visiting experts encourages her students to understand all the possibilities open to them.

Linda Mencarini, mathematics teacher at Rockville HS, organized a day-long mathematics symposium at which speakers from all walks of life came to share the significance of mathematics to their vocations. More than 1,300 students listened to real estate agents, college professors, statisticians, engineers, car salesmen and utility employees discuss the mathematics required by the work they do. "Mencarini met the challenge of scheduling an entire school with sensitivity to both the students' needs and those of the visiting speakers," according to the Rockville HS mathematics

(more)

ad 2 awards

department that nominated her.

Teachers may be nominated for the "Teacher of the Month" award by their peers, principals, parents, members of the Montgomery Education Connection or through self-nomination.

# # #

Contact: William H. Jones, 872-3188

Montgomery County Hotline

(continued from page 5)

March, and the speaker was noncommittal and asked me, "Do you feel you should do this or this?" Why was he so noncommittal?

Collins: We don't know all about your situation. We try to help you explore different options and decide what you would be comfortable doing. Then you own the problem and the solution.

Student: *How long do calls last?*

Collins: The average length is 24 minutes. A call can be 10 seconds or up to three hours.

Student: *How do mentally ill callers ask for help? Do they know they are ill?*

Collins: We refer them for help. Many have already received mental health services and may not be under care at the moment. We have four hour shifts. Some ill people call once a day or even once a shift (six times a day). They need a friend "to be there and listen to them." Many of their friends are tired of responding.

Bosnic: *What about confidentiality if teens call?*

Collins: Regardless of age, we never call anyone else. We never reveal callers' identities.

Student: *Even if the call is a Level 3 suicide call?*

Collins: When callers give us a name, we cannot verify if they are who they say they are. If they identify themselves, we ask them to get help from a family member, or we offer to speak to a family member for them.

Student: *Do you have contact with the runaway hotline?*

Collins: We can connect with 800 to 1,000 different referral agencies. Twenty percent of our total calls we can refer to agencies that offer specific help.

Student: *Wouldn't it be depressing to work for Hotline?*

Collins: No. We need to be able to empathize but not become too emotionally involved, or we lose our objectivity. This work gives volunteers a perspective on their own problems. They are a very special group of people, very supportive of each other. They develop a real comraderie.

(continued on page 8)

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Wootton HS physics teacher Wilson Bascom is the first recipient of the Montgomery Education Connection's "Teacher of the Month" award.

Bascom wins first award

Wilson Bascom, physics teacher at Wootton HS, has been selected as "Teacher of the Month" for his outstanding use of community and business resources. Bascom has invited college professors, business professionals, friends and former students to visit his classes to share their technical expertise.

For the past two years he has initiated, planned, organized and run a countywide physics meet for junior and senior high school students. Technical advisors made presentations at the event and served as supervisory judges who were available to answer questions and settle disputes. This year, about 300 students from both public and private schools participated.

Bascom also has been involved in the Summer Science Program offered by Montgomery County. He planned a kind of traveling science classroom for 20 to 30 students who elect to participate in this non-credit summer science exploration. The all-day program lasts 3 to 4 weeks. Bascom has taken students to the nuclear reactor at the University of Maryland, on a tour of Goddard Space Flight Center in Greenbelt, and to the multitude of laboratories at the National Bureau of Standards. The Chesapeake Bay Foundation is another resource Bascom has tapped. He has taken students overnight to the Smith Island Center for Marine Biology and Oceanography Studies.

Bascom serves on the task force for up-county special programs in science, math and computer science, and plans to spend his day of administrative leave visiting a resource that will better qualify him to talk with other committee members about using the many science resources in the up-county area.

According to his nominator, "Bascom's efforts to use community resources for the good of his students, and all Montgomery County students, deserve special recognition. His initiative, resourcefulness, and follow-through in this area are exemplary." ■■

Dubin defines jobs

(continued from page 1)

ager is the public relations arm of the bank. He or she is required to make "cold calls" on business people of the community to introduce the bank and its services. The branch manager's job is to tell the community, "We're a great bank. Bank with us."

Economists working for a bank forecast what the interest rates are going to do. They use computer models to do this.

Accountants must prepare financial reports for stockholders as well as many internal reports. Banks are highly regulated, so accountants interface between the regulators and the banks.

Insurance agents working for a bank occupy a sophisticated sales position as banks increase the services they offer.

Many banks have a large staff of employees. For banks with thousands of employees, **personnel experts** are a necessity. They function as interviewers and benefits experts.

Banks become involved in many legal procedures. **Attorneys** are vital on every bank's staff. Among their responsibilities are handling regulatory agencies and coordinating litigation as well as writing legal documents.

Seventy percent of the money banks receive is loaned out again. The remaining 30 percent is invested. Every bank has **investment analysts** to guide them in the best use of their money.

The **clerical staff** of a bank includes the largest variety of positions. Vital to its functioning are the bank's **administrative assistants, key punch operators, secretaries** and **computer operators.**

Several students in the class expressed an interest in becoming certified public accountants and questioned Dubin about his background in this field. He explained that all accountants need not be certified.

Concluding his remarks, Dubin reminded students who might be job hunting in the area of banking that it is customary to dress in business clothing, and that it is important to take school seriously and try to maintain a respectable grade point average. "You have the opportunity to get ahead in a bank. If you work 50 percent harder than anyone else, you can really advance." ■■

Paint Branch HS career coordinator Nancy Peckerar is winner of the Montgomery Education Connection's "Teacher of the Month" award.

Peckerar tops in resource use

Nancy Peckerar, career coordinator at Paint Branch HS and Montgomery Education Connection's "Teacher of the Month," was shocked when she calculated that she had placed more than 440 students in internships during the last 10 years. Peckerar began the school-based internship program in 1977 with a class of 18 students. This year she has placed 58 interns.

The awards committee, composed of business leaders from the Montgomery Education Connection's board of directors, selected Peckerar for her creative use of community resources. According to the awards committee, although part of her job involves use of such resources, Peckerar has "extended herself far beyond the formal job description. She has volunteered her time to develop materials about the Connection Resource Bank for use in communicating with teachers. In quality and quantity, her internship program has been outstanding."

Among Peckerar's favorite placements are a seal training internship at the National Zoo and catering internships in which the final project is always a luncheon for all the Paint Branch interns with chocolate mousse as a standard part of the menu. She has discovered internships in such varied fields as law, engineering, marketing, hotel/motel management, robotics, hospitals, TV, radio, agriculture (swine reproduction), travel, commercial art and social work.

For several years Peckerar arranged for shadowing programs (where students accompany a mentor and observe a day of work) for the entire 10th and 11th grades at Paint Branch. Because all students do not drive, the logistics became unmanageable. Now the program is limited to students in the career awareness class and other Paint Branch students who are interested. She confesses that her most difficult moment was accompanying a student to observe open heart surgery. The student was fine. Peckerar was not.

As part of her career awareness class Peckerar arranges for mock job interviews and invites personnel specialists from such businesses as Sears & Roebuck, Quality Inns, Woodward & Lothrop, Chuck E Cheese and Vitro to come to class and conduct formal interviews. Several of these interviews have resulted in job offers for her students.

(continued on page 4)

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HOT SPOT

Chemistry Teachers!

When you teach the instructional objectives on the nature of radioactivity, the stable radioactive particles and the application of atomic energy to science and society, the Connection Resource Bank can offer the following resources:

Dr. Hall L. Crannell, university chairman of physics department
Specialty: nuclear power, environmental issues, astrophysics.

D. Marvin Roush, associate professor
Specialty: nuclear & chemical engineering, topic: "Risks of Nuclear Power Plant, Effects of Nuclear Radiation."

Joe Reader
Specialty: atomic spectra.

Harvey Eisen
Specialty: electronics, radiation.

Joe Coyne
Specialty: nuclear radiation.

Dr. Tawfik Raby
Specialty: production of radio isotopes in medical research, research applications of radiation, can arrange for group of teachers to tour a small research reactor in the area.

Dr. Frank J. Munno, program director of nuclear engineering at local university
Specialty: nuclear waste management.

David Roth
Specialty: prepares and conducts training programs for specific utility needs, operates power plant training, also has large collections of slides, transparencies, pamphlets, papers and charts available.

Dr. David Ebert, training-reactor director at local university
Specialty: can arrange for students to tour reactor with university student guides.

Dr. Mohammed Modarres, university professor
Specialty: assessing reactor safety and reliability.

Connection Resource Bank
We've got what's hot!

Call Judy Messittee, 279-3125

Peckerar's students enjoy career search.

Peckerar wins

(continued from page 2)

Every two or three years Peckerar organizes a Seminar Day at Paint Branch for the entire student body. Over a period of several days, students may schedule themselves for different periods throughout the day (including lunch break) to hear speakers in disciplines such as math and science, art, music and dance, customer services and legal services, skilled crafts and foreign languages. Speakers have included machinists, electricians, plumbers, auto mechanics, construction workers, lithographers, carpenters, church musicians, music educators and therapists, composers, dance choreographers, FBI agents, police officers, lawyers, paralegals, airline representatives and hair designers.

Peckerar has taught seminars for MCPS on organizing an internship program and has helped develop the career awareness curriculum. When the Connection Resource Bank became operational, Peckerar shared all of her resources in science and mathematics with Judy Messitte, bank coordinator, providing about one-third of the original database.

Recalling the years of inviting the community into the classroom, Peckerar said, "I've been doing this for so long that many of my interns are in business for themselves or in a position to hire or employ other interns. Now my interns are taking interns. Sometimes they will call me, or often I will call them. The fun part is finding a new internship placement." ::

Connection Resource Bank

Of Interest

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer
Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866

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April "Teacher of the Month," Rita Segerman, shares her enthusiasm with her students.

Segerman receives award

Rita Segerman, gifted and talented teacher at Weller Road ES, is a one-woman outreach program all by herself.

She is the Montgomery Education Connection's "Teacher of the Month," because "as an elementary school teacher, her level of interaction with the business community at those grade levels is unusual and commendable. The committee is aware that elementary schools do have career awareness activities, but Segerman's program utilizes community resources in depth and over an extended period of time so the children have multiple exposures to the world of business."

Segerman is not one to let an opportunity pass her by. Each year she selects a theme for her students to explore. This year it is "Come to your Senses" (learning about the five senses). She has tried to show her students the connection between the human body and the human spirit.

She explained that "I read a newspaper article about Mr. Ken Hakuta, the entrepreneur who made millions of dollars marketing a plastic spider, the 'Wacky Wall Walker.' His appearance in my class and his advice to students confirmed the wisdom of having faith in yourself when you feel you have a good idea. He spoke of the need for motivation, determination and hard work to develop your marketing strategy. How important for young students to see the traditional work ethic still prevails."

Segerman's extensive use of the Connection Resource Bank has resulted in a parade of professionals who have visited Weller Road to share their expertise with her 80 students in the Area 1 TOK Program (Thinking Opportunities for Kids). An ophthalmologist, engineers from Vitro and the National Bureau of Standards and a physicist from the University of Maryland are only a few of the many "connections" Segerman has made for her students that have enabled them to explore lasers, sounds, vision and a multitude of sense stimulating phenomena.

After the visit of an extraordinary young legal researcher who was blinded at the age of six and has become a completely independent adult who travels on Metro, takes college courses, and even brought her knitting to Segerman's class, a student wrote, "You taught us that you have to have courage because you have to keep your self-confidence."

"Through networking, I heard about a woman who trains hearing-ear dogs. She was able to bring her puppies to class for a demonstration. She also became a mentor for a child researching the topic 'Animals Who Help Humans.'"

The Resource Bank arranged for Segerman to take her students to Gallaudet University "to see firsthand how hearing-impaired students cope with their disability."

Last year, for her unit on all aspects of flight, Segerman invited David Zahrens, a finalist in the Teacher in Space project to visit. Mr. Zahrens gave students "an opportunity to consider all of the implications of manned space voyages." A field trip to the Montgomery County Airpark provided students with "a firsthand look at that important facility and the opportunity to enter the cockpit of an airplane and sit in the pilot's and copilot's seats."

According to Frank Wal, principal at Weller Road, "Hardly a week passes without an important visitor arriving at Mrs. Segerman's room. They come with their impressive expertise, ready to share it with eager young minds and smiling faces." ::

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egerman's theme for the year, "Come to Your Senses," encourages students to xplore how learning occurs through taste, smell, touch, sight and hearing. Below, she videotapes Cindy Read, a student from Gallaudet University who is demonstrating American Sign Language.

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Montgomery Education Connection, Inc.

continued from page 4

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C & P Telephone Company
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In the areas of science and math the CONNECTION RESOURCE BANK can:

- **Get speakers for your classes**
- **Get mentors for your students**
- **Locate tutors**
- **Arrange field trips and internships**

More than 1,000 volunteer experts are in the data base.

To reserve a resource call, Judy Messitte at 279-3125.

Mencarini merits resource award

Linda Mencarini, a teacher at Rockville HS who planned a symposium during Mathematics Education Week, has been selected as "Teacher of the Month," by the Montgomery Education Connection after being nominated by the other nine staff members of the mathematics department of her school.

Tom Banfield, math resource teacher at the high school explained. "We appreciate the job she did for the entire school through our math and computer science classes. All 1,300 students had the opportunity to hear the visiting speakers."

"What started out as a request for a speaker was transformed by Mencarini into a day-long mathematics symposium. Speakers from all walks of life came to share the significance of mathematics to their vocation. Included were: a real estate agent from Town and Country Realty, college professors from Montgomery College, a representative from the Montgomery County Consumer Agency, a statistician from the Washington Bullets, engineers from Metro Laboratories and the National Bureau of Standards, a representative from the University of Maryland's Engineering department, a car salesman from Ken Dixon Chevrolet, an employee of Pepco and the supervisor of secondary mathematics from Montgomery County Public Schools.

Mencarini assumed the additional responsibility of arranging a complicated schedule to assign an appropriate speaker to each student level, making the best use of each resource.

Described by her colleagues as "warm, caring and a catalyst," Mencarini also was appreciative and sensitive to the needs of the speakers. "She provided flowers of appreciation, letters of thanks to the speakers' immediate superiors, a delicious brunch for them to snack on, and 'greeters' to give directions to the mathematics department area."

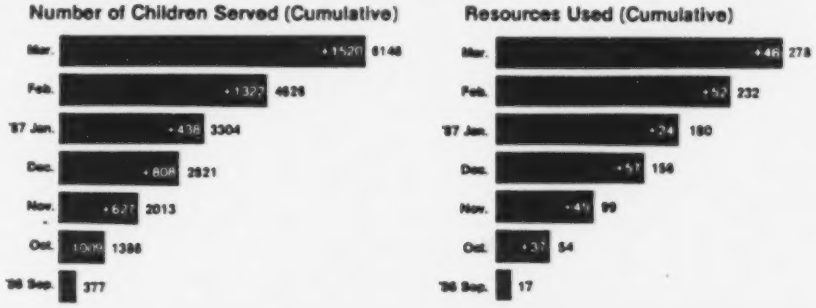
Mencarini's philosophy is that "math education is more than a classroom activity: it is preparation for life." Her response to the age-old student question, "How are we going to use this stuff, anyway?" is to look to community business and government resources for the answer.

The symposium is not the only manifestation of Mencarini's unique style of attracting students' interest. "I employ very strange techniques in teaching. We do things like sing the quadratic formula. We have a 'Look for the Common Factor' song to the tune of 'Look for the Union Label.' (When my classes take an exam, they all hum.) We are going to measure the school flagpole with a plastic protractor, a straw and a ruler. Actually, I enjoy what I'm doing and I try to get my students to enjoy it as well. I knew as an eighth grader that I would be a math teacher. My math teacher that year was sick often, and I used to take over the class."

Mencarini has been teaching in Montgomery County for 17 years. Her consumer math and honors algebra II-trig classes have provided a stepping stone from which this creative teacher has reached beyond classroom theory and has drawn her students into the realities of life. ■■

Linda Mencarini makes math practical.

1986-87 Resource Bank Use



Arbor Day celebrated

Marshall Ray, a soil conservationist for the state of Maryland, helps 75 third graders at Lakewood ES plant a sawtooth oak tree on school grounds to commemorate Arbor Day (always the first Wednesday in April).

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Seikaly selected teacher of month

Elaine Seikaly, magnet coordinator at Takoma Park IS, has been selected as Teacher of the Month based upon her outstanding use of community resources and the programs she has developed for her students.

For each of the past three years, more than 500 students at Takoma Park have attended Conferences on the Future coordinated by Seikaly. Experts from such diverse areas as artificial intelligence, organ transplants, telecommunications and the space station have shared their experiences and encouraged students to pursue science as a career.

Seikaly also organized two annual conferences on alternative careers for women. The goals have been "to encourage gifted females to enroll in advanced science and math courses by having successful women in science and math careers share their experiences." Speakers have included women in chemistry, horticulture, physical sciences, systems analysis, engineering, accounting, neurology, veterinary medicine and oceanography.

Seikaly has linked the past, present and future by arranging an intergenerational project involving an 8th grade magnet earth science class that visited residents of the National Lutheran Home for the Aged and talked to residents about their memories of the appearance of Halley's Comet 75 years ago.

In cooperation with the Public Health Service, Seikaly coordinated an Hispanic Leadership Conference that provided mentors for 20 intermediate school students who will work with them right up to the time they are ready to get jobs. The entire conference program was conducted in Spanish.

For the past two years Seikaly has staged a Black Leadership Conference involving 20-30 black students, each of whom was provided with an individual role model from such businesses and offices as Dominion Bank, Social Security Administration, Food and Drug Administration, Public Health Service and the Office of the Assistant Secretary for Health.

Seikaly also has taken a step beyond providing adult role models for students. In a program called Teens in Action, modeled after a National Institute of Drug Abuse program, she has provided an opportunity for peer role models to share their decisions not to use drugs with the entire school. Through the English department students were asked to write essays centered around decision-making and peer pressure. One essay was selected from every class, published in a book (funded by NBC Television and WRC TV) and distributed to the entire student body. According to Seikaly, the essays are important because "students are making public statements about their values relating to drugs. They are letting other adolescents know that there is acceptance for saying 'no' to drugs."

Elaine Seikaly earns recognition from Montgomery Education Connection.

Seikaly has established and maintained the school's on-going relationship with IBM and Signet Bank through the Adopt-a-School program and with the media center and science department of Montgomery College. She has used the Connection Resource Bank, the Public Health Service and the National Institutes of Health extensively to provide mentors for students working on science fair projects as well as for conference speakers.

The awards committee recognized that much of what Seikaly does falls within the responsibilities of her job, but she "has extended herself far beyond her formal job description." ::

At College Park Airport student operates a flight simulator.

NASA expert

(continued from page 6)

As a grand finale, Poff showed the class how to make a "ring-winged" aircraft out of a piece a notebook paper. He explained that the idea for ring-winged airplanes came from a high school student who thought of the idea as part of a science project. NASA is now developing this type of aircraft. Paper was creased, folded and taped. A blizzard of white ring-winged sail planes engulfed the classroom as students delightedly launched their crafts from chairs, desks and every corner of the classroom. There was no question that Poff had given Knoller's class a "feeling" of flight. ::

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Harold Banks, Smithsonian geologist, reveals the history of rocks.

Geologist reads old rocks

Harold Banks, a geologist working at the Smithsonian Institution, visited Caroline Augustine's 75 fifth graders at Wheaton Woods ES, and explained that he began his career by looking into a cigar box.

"When I was young, my dad took me into the basement and opened a cigar box that had belonged to my grandfather. The box was full of lots of pretty minerals. I became intrigued. There was an amateur hobbyist in my neighborhood who helped me identify them and I began a collection."

"Why collect? The story of the earth is told in the rocks. They give us clues as to the earth's history of weathering, erosion, volcanoes. What is the earth's crust made of? Rocks." Geologists like to read the rocks.

"Where can you collect minerals? Everywhere, in your backyard, in the school yard, in rock quarries (accompanied by an adult). We geologists are so interested in rocks that we have to drive very carefully because we are always looking for interesting specimens."

Banks deposited small boxes of minerals and "analytical tools" on each cluster of desks. He explained that the penny in each box was a tool for analyzing the rocks; you can scratch the rock with it to test for "hardness."

Before embarking on the actual experiments, Banks taught the class how to identify an unknown object by examining its "properties," the characteristics you can see. Using five students whose names he listed in a chart on the board, Banks demonstrated that by classifying them by height, eye color and hair color, he was able to identify them by name even though he had never met any of them.

He proceeded to lead the class through an examination of the physical properties of the minerals they had before them, examining color, luster, hardness and streak, the result of rubbing a mineral across a white porcelain plate to see the true color. As minerals spilled out of boxes onto the desks, sorting sounds mingled with excited voices as students examined, scratched and divided their rocks.

Banks said that the identification of a unique property or combinations of properties helps identify an unknown mineral. He illustrated this process by using a "determinative table," similar to the chart used in identifying the five female students in his previous exer-

(continued on page 4)

John Gamage, teacher of the month.

Gamage wins MEC recognition

The Montgomery Education Connection (MEC) has selected John Gamage, business management teacher at Seneca Valley HS, as teacher of the month for January.

According to Richard Dumais, principal of Seneca Valley who nominated him, Gamage has created many opportunities for his students to learn "firsthand about the realities of the business world."

As coordinator of the Classroom on the Mall program at Wheaton Plaza, Gamage arranged for students from throughout Montgomery County to attend classes at facilities provided by Woodward and Lothrop and Montgomery Ward. The students were taught accounting and merchandizing skills to prepare them to manage a flower kiosk at the mall.

As a member of the Germantown Rotary Club, Gamage started an Interact Club for students who want to serve the school and community. Meeting every Tuesday during open lunch, the club has grown from 35 to 85 members in two years. Members of the club meet with business people at both school and business locations. Two students are selected each year to attend the World Affairs Conference at George Mason University, a week-long conference for students to learn about world affairs from experts in government. Speakers from the Department of State and the Pentagon lecture, and participants are invited to visit many government offices.

Gamage arranges for entrepreneurs to visit his classes on a regular basis and his students have heard from a variety of self-employed business people the owner of Sassafras (a clothing store) the owner of Century AMOCO, doc

(continued on page 4)

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Christiansen is teacher of month

The Montgomery Education Connection has selected Stephen Christiansen, Ridgeview JHS science teacher, as April Teacher of the Month based upon his work with the National Bureau of Standards (NBS) to develop and implement the STEP (Science Technology and Enrichment Program) and REAP (Resource Education Awareness Partnership) programs.

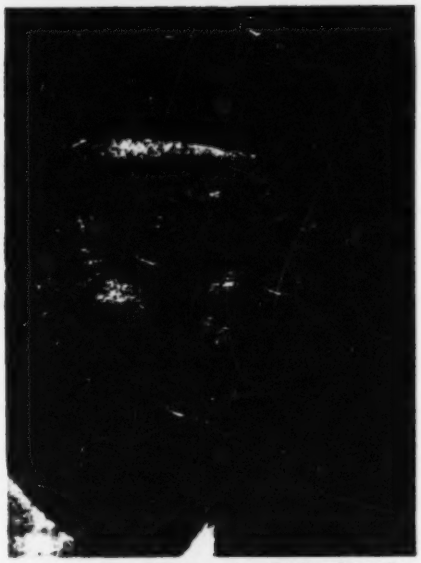
These programs were established to utilize Bureau scientists as educational resources. Started as a venture between Ridgeview and NBS to enhance the science and math curriculum, they were expanded to serve all Montgomery County schools.

Christiansen worked with scientists to develop a range of presentations and a schedule, modifying a computer data base program for tracking presenters and presentations.

Because of his familiarity with the resources at NBS, Christiansen was asked by MCPS to arrange for newly hired science and math teachers to tour the facility, meet the scientists and become familiar with the work and research being done there. Working through REAP, he set up a meeting of teachers and scientists.

As a teacher interested in motivating his students to see the applications of science, Christiansen coordinated a school project on crime detection and law enforcement. In connection with a unit on drugs, controlled dangerous substances, tobacco and alcohol, he invited police officers and detectives to talk about their roles in preventing and solving crime. Through a series of speakers, students learned about fingerprints (how to take them and read them),and how the study of handwriting can reveal information about the writer. There were lectures about how crimes are detected and how criminals are tracked. Visits to the Federal Bureau of Investigation (FBI) reinforced the uses of science in law enforcement.

Christiansen will receive a $100 check from the Connection and have the opportunity to take a day of administrative leave to visit an area business to increase his knowledge about resources available to the schools. ⁘



Christiansen of Ridgeview JHS selected.

Studying snakes

(continued from page 1)

pillowcases he had brought with him. "I carry snakes in pillowcases because they can breathe through the cloth and it is soft. You have to tie the knot really tight or a snake will use its head and nose to push through."

As Cumings withdrew each snake, students crowded around to hold and touch it. Selecting the "mellow-natured" corn snake, Cumings allowed several students to drape it over their shoulders where it coiled obligingly around their necks. ⁘

Cold-blooded necklace decorates adventuresome student.

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Harry Pitt, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866

National Bureau of Standards physicist catches cold

Some like it hot. Craig Van Degrift kes it cold, very cold. As a boy living southern California, he used to put et dish rags into the freezer to see ow they froze. "In our climate, I uldn't see it any other way." Now volved in cryogenic research at the ational Bureau of Standards, Van egrift put on a "cool" show for High-nd View's 4th graders.

Star of the show was a quarter-sized eramic disk. "This is the first time I ve been able to bring a superconductor a lecture," Van Degrift explained. etting it on a styrofoam cup and ooling it with liquid nitrogen, he placed small magnet above the frozen disk here it hovered magically in the air. In this demonstration, the supercooled ramic disk acts like an imaginary posing magnet, repelling the one I laced above it." Van Degrift explained hat by using superconductors to cre-e a powerful permanent electromag-t, entire trains can be made to levi-ate above tracks of ordinary metal.

Like a magician delighting in surprising his audience, Van Degrift performed other demonstrations involving low-temperature physics.

Proving that air can become a liquid, he dipped an inflated balloon into a can of liquid nitrogen. As the balloon shriveled, the air inside liquefied and sloshed at the bottom. At room temperature, the balloon reinflated within seconds and the liquid inside disappeared.

Responding to a question about how wet clothing hung outside in the winter can dry, Van Degrift explained that ice that forms on the clothes will turn directly to gas without melting when it's really cold outside. "This same phenomenon is what allows us to have freeze-dried foods."

Filling a coffee can with liquid nitrogen, Van Degrift noted that, "Rubber doesn't work well when it's cold." He dipped a flexible piece of rubber tubing into a can of liquid nitrogen. The frozen coil that emerged shattered like glass when struck. Reflecting on the Challenger disaster that resulted when the rubber rings linking rocket stages lost their flexibility due to a sudden drop in temperature, Van Degrift noted that decisions involving science often are made by non-scientists. "Even if you're not working in the field, you should understand and respect scientific measurements."

In a final demonstration, Van Degrift led his audience into a hallway and to the astonishment of teachers and students alike, he spilled the liquid nitrogen onto the floor and carpet where it splattered, hissed, sizzled and spun into balls of dark dust as it skittered down the corridor and across the carpet. "For some unknown reason, liquid nitrogen attracts dust," he explained.

Obviously enjoying his work, Van Degrift noted that since society is letting him "have a lot of fun" doing research, he feels that volunteering for the Resource Bank is an obligation and a way of saying thanks. ::

Holborow wins resource award

A taste of anything good will only het the appetite. Since business law vers an enormous range of topics, rginia Holborow, business law teach-r at Wootton HS, has presented her lasses with a smorgasbord of experts the field.

The Montgomery Education Conection selected Holborow as "Teacher the Month," based upon the number d variety of speakers she has invited make presentations to her classes.

A review of topics presented this ar reads like a who's who and what's at in business law. Search and sei-ures, real estate law, the State's At-orney, patent law, tort law, police rk, comptroller of the Medical Serv-Corps, auto insurance, entrepre-eurial internships, the law and the nsumer, how candidates are financed, ld abuse, business law and the school stem, white collar crimes, malprac-ce, the Nuclear Regulatory Commis-n, real estate, real estate contracts d juvenile law are only some of the pics covered by speakers this year.

In addition to inviting the community in, Holborow has taken her classes out into the world of business law. Field trips to the Supreme Court, the Federal Bureau of Investigation and the District Court have excited student interest. "We were lucky this year," Holborow admits. "We got to see a case presented before the Supreme Court when we visited."

She spoke enthusiastically about one presenter, a vice president of First American Bank, who showed her classes how commercials for the bank are made. "It was fantastic to see!" noted Holborow.

As a former colleague of State's Attorney Andrew Sonner, who taught with her at Walter Johnson HS while he was attending law school at night, she has invited him to address her classes twice a year.

Holborow has taught business courses at Wootton for 16 years. Before that she taught subjects as different as English, science and physical education in places as far apart as Florida and Newfoundland. ::

Virginia Holborow is Teacher of the Month.

May 20, 1987

Dear Rita,

Just a note to ask you what resource you would like to visit as part of the Montgomery Education Connection's "Teacher of the Month" award. You are entitled to a day off, and the Connection will pay for a substitute teacher to cover your classes.

When you select a business or government agency that functions as a resource for MCPS, I will be happy to make the arrangements necessary for your visit. Enclosed is a list of members of the Connection, any of whom would be happy to have you visit. You may use your day off during the remainder of this school year or some time next fall. Please contact me at 279-3221 to confirm your plans. Congratulations again on your selection as "Teacher of the Month."

Judy Kramer
editor, "Of Interest"

850 Hungerford Drive · Rockville, Maryland 20850 · 301-279-3391

PROJECT ATTACHMENT NUMBER 22

Sample letter recruiting resources.

Montgomery County Public Schools

850 Hungerford Drive • Rockville, Maryland • 20850
Telephone: 279-3391

November 3, 1986

Westinghouse Science Talent Search
1719 N. Street, N. W.
Washington, D. C. 20036

Good morning:

Maryland's Montgomery County Public School system is anxious to provide its students with every opportunity to challenge themselves and to excel. This year we have begun a pilot program to connect businesses and other organizations with the public school system using a computerized data base that includes more than 850 speakers, mentors, internships, field trips, contests and awards.

The competition you sponsor is listed in September's issue of "Pro Education," and we are interested in including it in our data base which would make it accessible to all 95,000 students in our schools. Would you send us more information so that we can include your contest among our resources?

Sincerely,

Judith L. Kramer
Resource Specialist

Judith L. Kramer

JLK:hk

Pamela letter sent

PROJECT ATTACHMENT NUMBER 23

Letter thanking editor for acting as a resource.

Connection Resource BANK

MAY 28 1987

May 27, 1987

Ms. Judy Kramer
Public Information Office
Montgomery County Public Schools
850 Hungerford Drive
Rockville, Maryland 20850

Dear Judy:

Thank you for helping the Resource Bank with the extensive interviews at the Edison Center. I appreciate your willingness to offer your own services when there was no one available from the community.

Your assistance has been immeasurable.

Fondly,

Judy Messitte

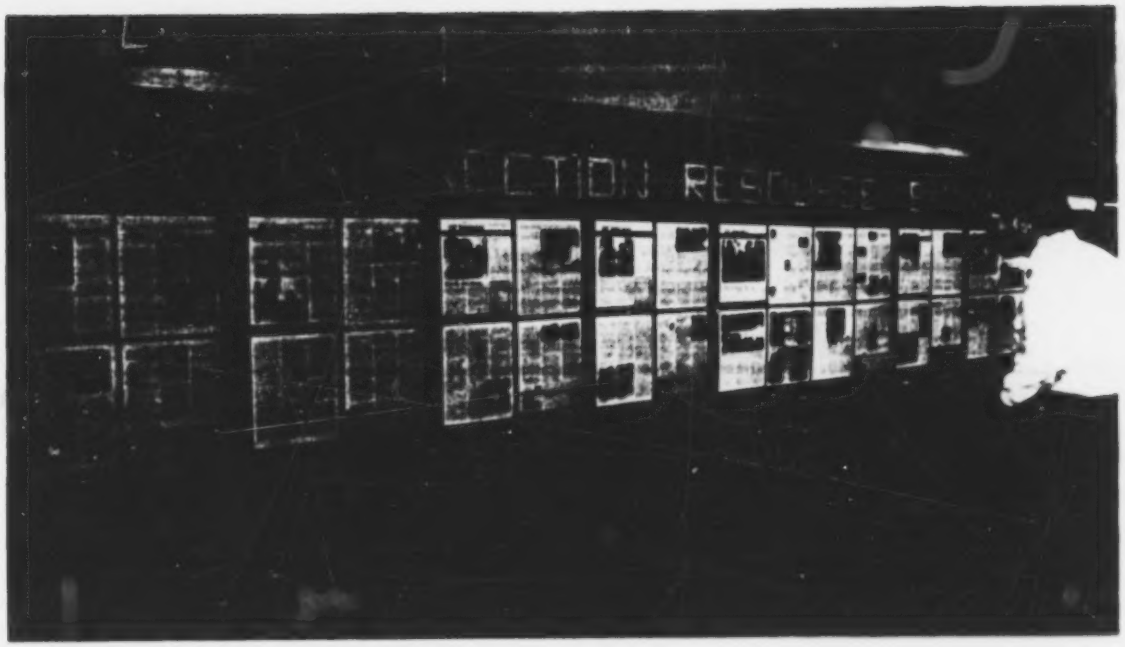
Judith Messitte
Coordinator
Connection Resource Bank

JM:nb

850 Hungerford Drive, Room 129
Rockville, Maryland 20850
(301) 279-3125

PROJECT ATTACHMENT NUMBER 24

Photograph of bulletin board at the Board of Education.



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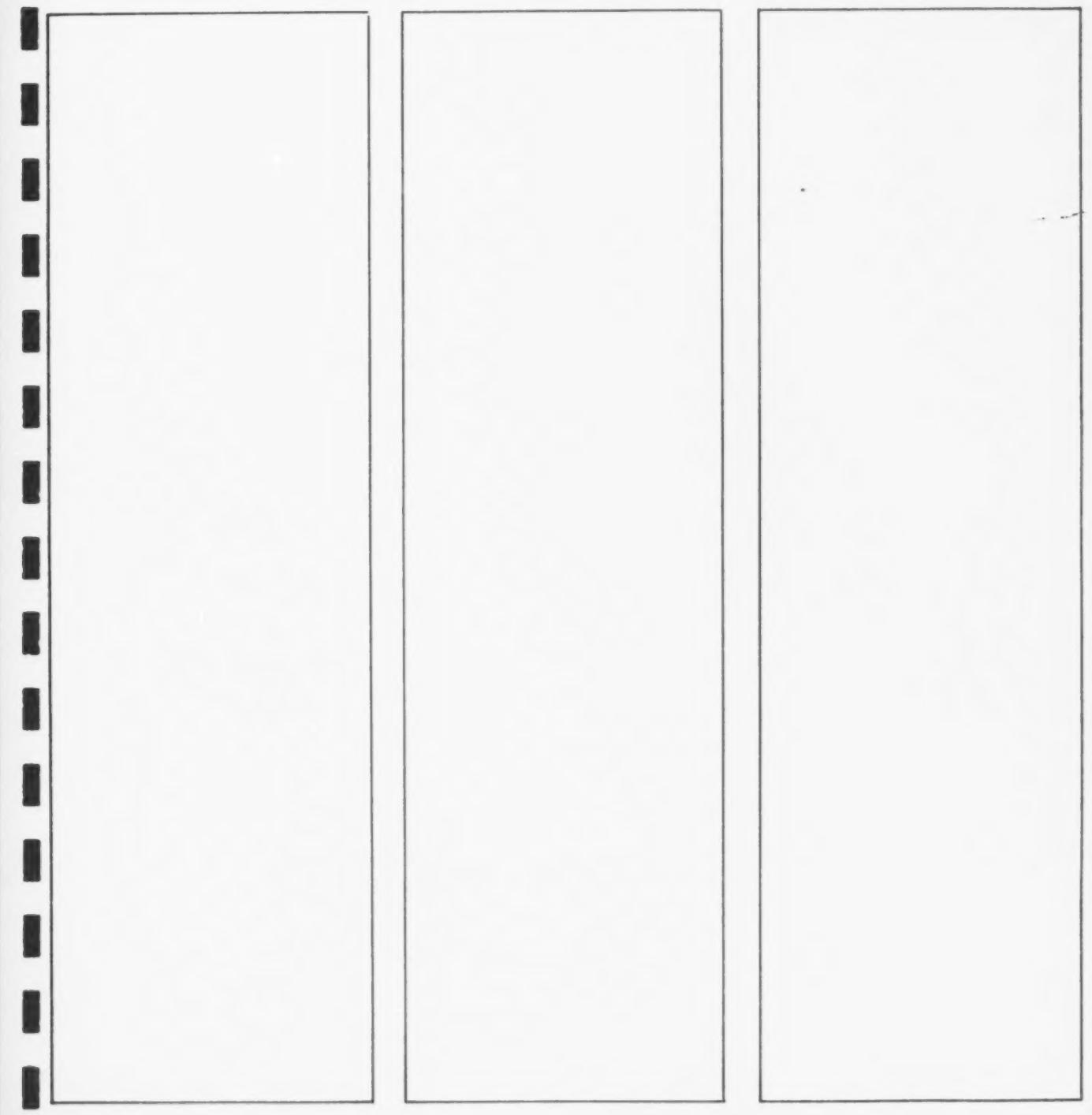
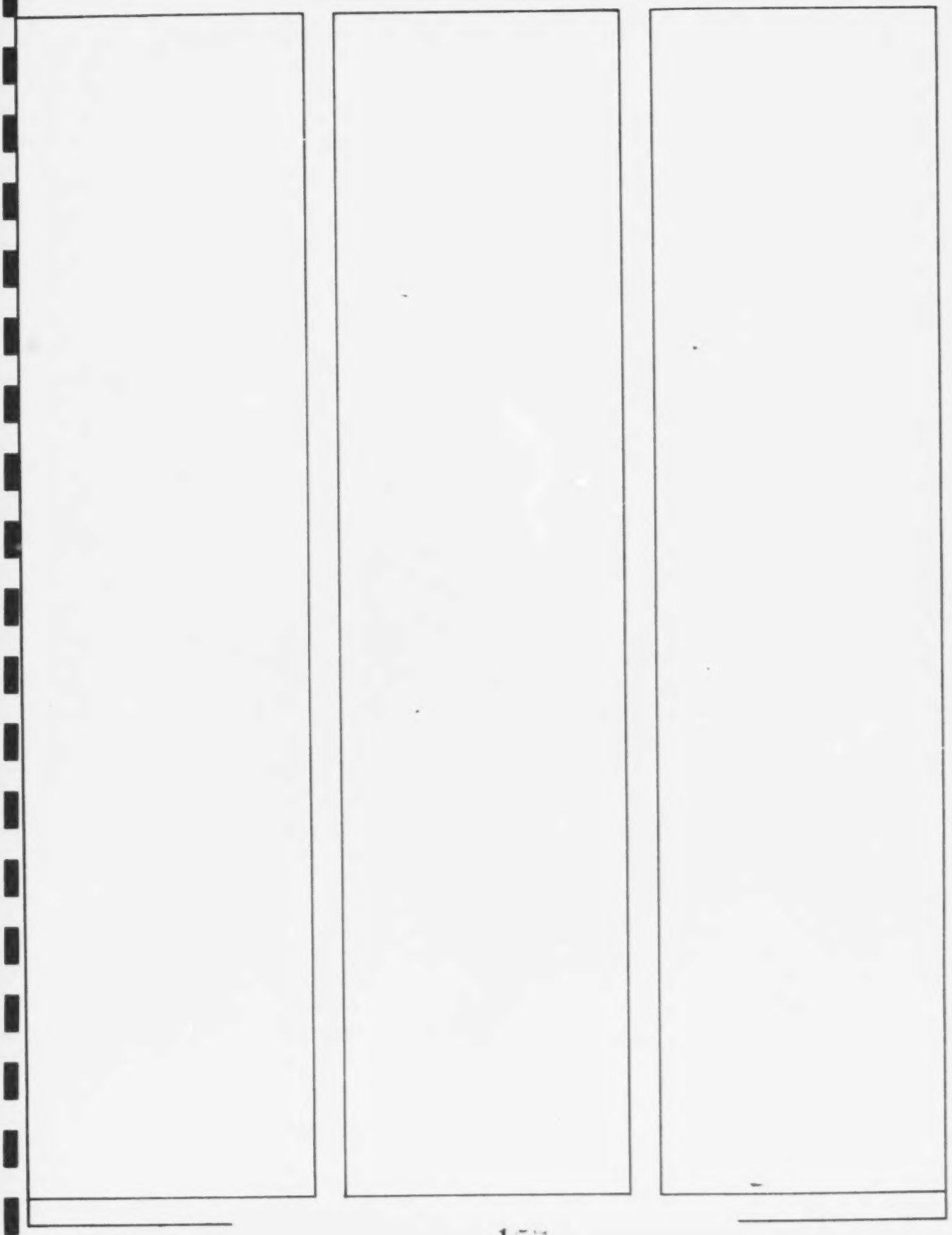
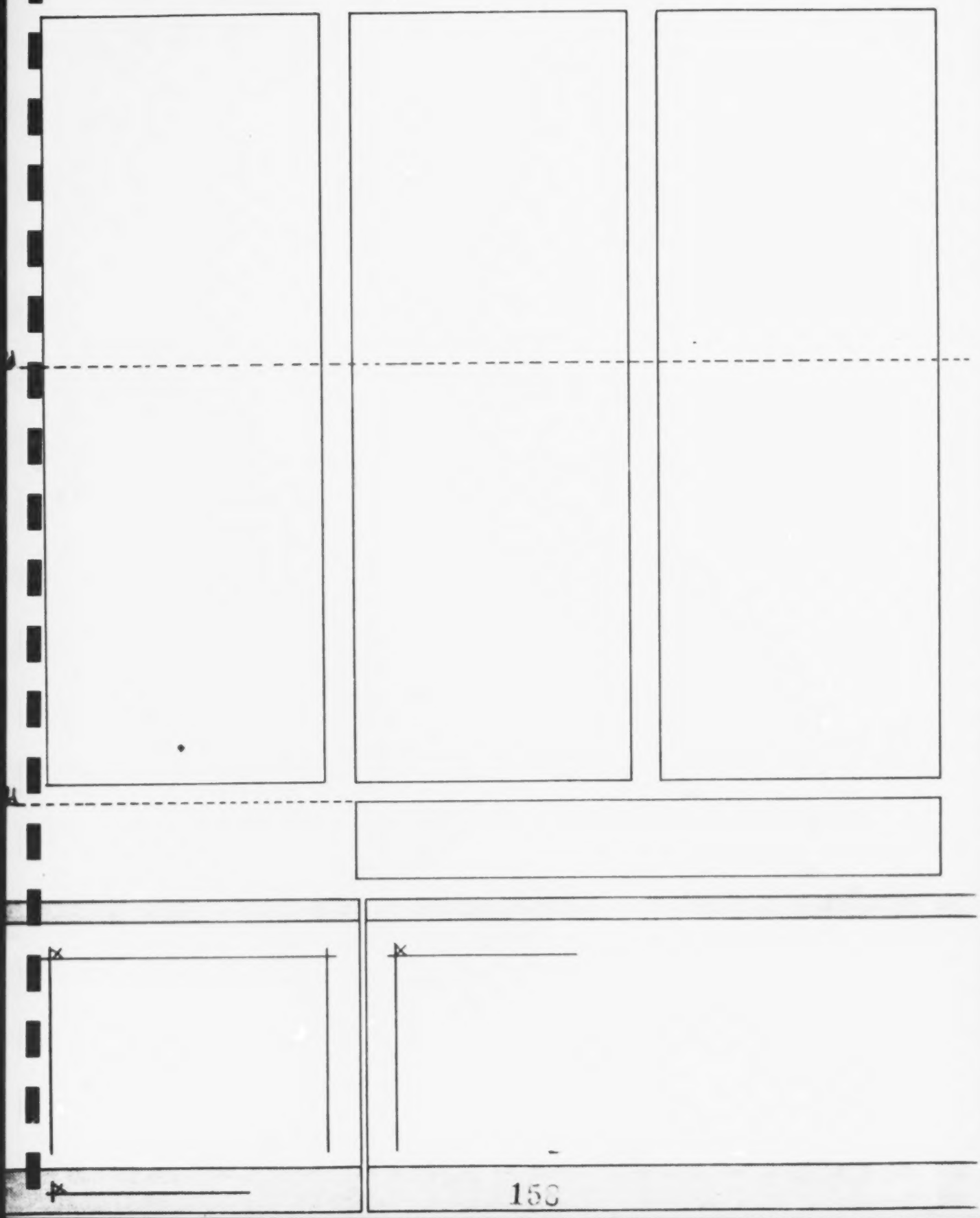
PROJECT ATTACHMENT NUMBER 25

Paste-up sheets for "Of Interest."







PROJECT ATTACHMENT NUMBER 26

Tracking forms for "Of Interest" copy.

"OF INTEREST" TRACKING FORM

Month_____

Article	To Subject	To B. Henry	To Graphics	To Typesetting

PROJECT ATTACHMENT NUMBER 27

Monthly production schedule for "Of Interest."

SCHEDULE FOR MAY "OF INTEREST"

APRIL 7 - copy to Sally Jackson and Sally Keeler

April 8 - photographs from Bill Mills

April 8 - copy to typesetting

April 9 - editing and layout

April 10 - editing and layout

April 13 - cutlines and headlines

April 14 - paste up to Susan Sullivan

April 15 - final paste up and proofing

April 16 - to John Stephanos for printing

Connection Resource Bank

...Of Interest

"Hands on" is the policy at the Smithsonian Insect Zoo.

Insect Zoo needs interns

The Smithsonian Insect Zoo, located in the Natural History Museum in Washington, D.C., is looking for interns and the job offers exciting possibilities for high school students.

In addition to the experience of handling the insects and working with the public, interns are welcome to join the coordinators on collecting expeditions, field trips, behind-the-scenes tours and social events. They participate in the maintenance of the habitats and have an opportunity to spend time with other volunteers who may be experts in the field of insect study. They receive the newsletter "Creature Features," published monthly for the Insect Zoo volunteers to keep them up to date with changes in the exhibit and to announce upcoming volunteer activities. Volunteers are urged to contribute articles to the newsletter.

Student interns must be of high school age, and enjoy meeting and talking with a variety of people. Speaking in front of large audiences is an option. The zoo is looking for reliable, prompt, courteous students who will commit four hours a week on a regular basis. This time commitment can be four hours one day a week, or two hours two days a week. The zoo is open every day of the year except Christmas from 10 a.m.-5:30 p.m., so internships can be done after school, on weekends or during the summer. The Metro stops in front of the Natural History Museum, making the program more accessible to non-driving students.

At the museum since 1976, this permanent exhibit has had a variety of interns ranging from high school sophomores to a neuro-surgeon, retired biology teachers and a pest control manager. The theme of the exhibit, "success through diversity," is echoed in the composition of its volunteer staff. The staff consists of two full-time coordinators, Sally Love and Barbara van Creveld (both of whom have degrees in biology) and about 50 volunteers.

According to van Creveld, an initial interview is required to assess whether the student is poised enough to meet the public. Interns will meet and talk to visitors, answer questions and explain the exhibit.

(continued on page 4)

New newsletter to highlight resources

Welcome to the Connection Resource Bank and to *Of Interest*, the first of a series of monthly newsletters published by Montgomery County Public Schools (MCPS) through a grant from the U.S. Department of Education's "Excellence in Education Awards" and additional money from the Montgomery Education Connection.

Of Interest is designed to help teachers learn about the rich resources of the business community and the Washington metropolitan area that are available to MCPS teachers and students.

This issue contains a background about the Bank and several articles to familiarize teachers with resources currently available and in use. Each issue will highlight different resources from the Bank.

Each month, the "Bank Notes" column will list specific resources to show the variety of areas covered. The list is only a small portion of the more than 850 resources in the Bank's data base.

Since *Of Interest* is designed for teachers, suggestions from teachers are welcome. Please address them to Editor: *Of Interest*, Office of Information, Room 112, CESC.

Resource Bank is up and running

A sophomore who loves tarantulas can become an intern at the Smithsonian Insect Zoo and fascinate audiences with daily tarantula feedings.

Sixth graders studying trees can listen to music and watch colored graphics materialize on the screen as they move through a computer program designed to teach them tree identification.

A science teacher can arrange a field trip related to cellular energetics for first period biology.

This is the Connection Resource Bank, a link designed to bring the expertise of the community and business world into the classroom. The Bank does what it says—it connects. "Let your fingers do the walking," and at the push of a button or one simple phone call a massive data base of 850 resources becomes available for use in the classroom.

How was the Bank founded?

Two and one-half years ago The Montgomery Education Connection, Inc. (MEC), a non-profit foundation, was established to serve as a link between the schools and the business community. Comprised of business leaders, the Connection undertakes projects that meet both school and business needs.

As part of its partnership with Montgomery County Public Schools, the Connection's first project was the establishment of the Connection Resource Bank, a computerized library of experts and opportunities in hundreds of fields. A micro computer was purchased by the Connection for use at CESC to operate the Bank, and MCPS hired Judy Messitte on a half-time basis to coordinate the program.

Vitro Corporation was instrumental in developing the program used to manage the data base and has donated hundreds of hours to refine the program and train the coordinator in its use.

The Bank was created to provide an efficient method for sharing information. It offers the business community a simple mechanism through which its valuable resources can be accessible to teachers to enhance the educational program.

In a pilot program at Wootton, Paint Branch and Woodward high schools, micro computers are available for teachers to browse through the data base resources to find out what they can use in their classrooms. The ultimate goal of the program is to have a computer available for this use in every school. Until then, the Bank is available to all MCPS teachers by telephone. Judy Messitte, Bank coordinator, can be reached at 279-3125.

What's in the Bank?

More than 850 businesses and individuals are listed in the Bank under a variety of topics. The data base currently emphasizes math and science and will gradually be expanded to include more curriculum areas. Resources are in four categories: personnel (tutors, mentors, consultants, judges and speakers), materials (instructional aids, surplus equipment, awards and scholarships), site resources (student internships, shadow programs, field trips, tours and seminars) and teacher opportunities (grants and awards, summer jobs, internships, conferences and seminars).

How can the Bank be accessed?

A telephone request to Messitte will initiate a search for the appropriate expert, program or field trip. Once contact has been made and availability confirmed, the teacher is given the information and asked to contact the person or organization directly to discuss specifics.

Merle Garvis, president of Cordatum, Inc., Bethesda, and past president of the Connection, says Montgomery County has some of the nation's top talent in science, mathematics, engineering and business, people who are willing to share their expertise with teachers and students. The Connection Resource Bank is an excellent way to bring them together.

What is teacher reaction?

Last summer when Phyllis Larsen and Joseph Andrews, sixth grade teachers at South Lake Elementary School in Gaithersburg, were teaching classes for gifted and talented students in the fourth through sixth grades, they called the Bank for help.

Larsen and Andrews had heard of the Bank through Martena Taliaferro, Area 3 supervisor of elementary instruction, at an in-service for Summer Institute teachers. A phone call to Judy Messitte, CRB coordinator, resulted in contact with several experts who were willing to share their knowledge and experience. "It opened up

Judy Messitte demonstrated the use of the Resource Bank to Jean Sutton, Vitro Corp., Merle Garvis, president of the Montgomery Education Connection, Jerome Marco, principal of Whitman High School, Lawrence Shulman, member Maryland State Board of Education, and Charles Gilchrist, county executive, during a recent State Board of Education visit to Montgomery County.

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doors for us. It made available resources that we as teachers don't have time to find."

Preparing a unit on "air," they booked Margo Brown, president of the American Kite Flyer's Association. Brown came equipped with two video-tapes and enough materials to allow each child to build a kite. The students constructed the kites under expert supervision and tested them with exciting results. They didn't just read about air, they felt it, used it and saw the results.

Larsen and Andrews are just two MCPS teachers who have discovered what's available through the Bank. Larsen admitted, "We were nervous in the beginning . . . you hate to give up the time." Andrews added, "We decided to give it a try. It was really just great."

For a unit on "trees and plants," the teachers arranged for Pam Stenger, educational horticulturist at Brookside Gardens, Wheaton, to visit their classes. Stenger helped each child create individual greenhouses that were taken home to share with families.

Two other programs were booked through the CRB. One was Jim O'Donnell, Vitro Corporation, a "wilderness man" who spoke on survival skills and brought all his equipment (three tents and various sleeping bags) "and really shared with the kids." Each child went home with handouts about survival.

Another was Sam Lyons, the "insect man," an expert who works at the Marydale Nature Center in Silver Spring as part of its extension program. "He had the kids in the palm of his hand," Larsen said. Explaining his huge cases of exhibits, he drew insect sketches and took dead insects apart so that students could look at individual characteristics. He was "an actor, a comedian," as well as an expert instructor, Andrews said. "His enthusiasm was contageous."

Larsen explained that now she will "save five days out of the Summer Institute program for speakers. Some kids are so sparked by an outside person—a different voice. We'll use many more speakers during the school year."

Larsen and Andrews said that based upon their use of the Bank, they felt "a high level of trust. If the Bank is sending them, they're high level people." They observed that the experts who visited their classes were good, and "were excited to be asked!" ■■

Student shows her father how to identify a tree at recent Area 3 Children's Conference on Science and Technology.

Meet a tree in an Apple IIe

Brookside Gardens, Wheaton, has developed an outreach program that brings the science and art of tree identification into the classroom. A computer program for the Apple IIe, especially designed to help fourth through sixth graders identify trees commonly found in Maryland, is ready to be invited to any classroom. Three years in the making, the program is a series of questions and pictures offering a step-by-step exercise in observation and logic. Liberally sprinkled with pop-art praise and music, the text is colorful and inviting.

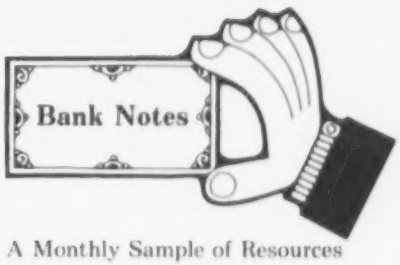
Pam Stenger, educational horticulturist at the gardens, explained that this is Maryland National Capital Park and Planning Commission's first outreach program "without a warm body." The program consists of two user friendly floppy discs that are self-instructive, 11 leaf samples laminated on large cards and a tree key (really a flowchart in disguise). The program can be made available up to two weeks at a time.

In groups of two or three, students are asked by the computer which category of tree they wish to meet. Some of the choices available include pancakes and syrup, cones without ice cream, player piano and tree of knowledge. To complete the program all 11 trees must be identified correctly by the students.

The laminated cards contain real specimens of each of the choices (white pine, Virginia pine, hemlock, Leyland cypress, holly, tulip poplar, cherry, sophora, horse chestnut, maple and dogwood). Through a series of questions (Is your tree evergreen or deciduous?) and definitions (A deciduous tree loses its leaves each year.), the students are led to observations of leaf patterns. Colorful drawings of each kind of leaf appear on the screen as students continue to play detective. Each correct identification is followed by musical and graphic congratulations and a paragraph of general information about the tree explaining its tricky title in the menu. According to Anne Connor, a teacher assistant at Sherwood ES who has helped children use the program, "The kids really learned a lot. If you put a kid in front of a computer with things to fool around with, you've got it made!"

The program was designed with delays that allow the slower reader enough time to be successful. The faster reader can move ahead rapidly by pressing the return key after each question. An average reader can identify about six trees in an hour. Homogeneous grouping is recommended.

(continued on page 4)



A Monthly Sample of Resources

Aquatic habitats, snakes and frogs
Biomedical engineering, robotics
Calculus, linear algebra, differential equations
Cardiovascular health care
Career as a management accountant
Cartographer
Chemical analysis of food
Computers
Cryogenics kits
Earthquake engineering
Entomology
Environmental carcinogens
Fluid mechanics, hydrodynamics, hurricanes, tornadoes and ocean dynamics
Health care, anorexia, bulimia and obesity
Lasers and holography
Liquid nitrogen and temperatures
Metallurgy
Meteorologist
Microbiology, infectious diseases
Multiphase flow, thermal fluid science
Organic chemistry
Park naturalist
Physics of sound
Probability risk assessment
Problem solving in chemistry
Robotics
Seismology, underwater sound
Theoretical symmetry
Underwater Acoustics

Florida Lubber grasshopper and intern inspect each other at Smithsonian Insect Zoo.

Brookside Gardens

(continued from page 3)

Using high school students and college interns familiar with computer programming, Stenger made the program a "hands-on, real life" experience.

There are five sets of the program ready to go and there will be as many as 10 eventually. Stenger's goal is to provide each school administrative area with several copies to distribute. There is no charge for the program, but a refundable deposit of $25 is required to assure the safe return of all equipment.

Why not call the Connection Resource Bank and invite fourth through sixth graders to "Meet a Tree"? Science has never been more colorful, challenging, musical and fun! ∷

Zoo internships

(continued from page 1)

Responsibilities can include public feedings and demonstrations. During a 20-hour training program, interested interns learn how to feed tarantulas (to the horror and delight of their audiences), and how to supervise the handling of the "touch me" exhibits of insects, spiders, crustaceans and centipedes.

Interns study each glass aquarium and learn about its inhabitants. A short quiz (which is not scored) is given to interns so they are ready for any questions the public might ask.

Slides and tapes also are a part of the training. A series of 10 30-minute programs, professionally prepared by an entomologist, is available. The staff members hope the interns will use one each time they come until they have seen the entire series.

Van Creveld explains that the zoo "is an emotional exhibit." People react differently and interns are prepared to deal with all reactions.

Van Creveld sees the internship as beneficial to the student in two ways: "It helps kids mature by seeing other people of all ages," and, "is an educational process to help them choose a career path." ∷

How to Connect:

To reach the Resource Bank call
Judy Messitte
279-3125

Connection Resource Bank

...Of Interest

Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published for MCPS teachers monthly, October through May, through an Excellence in Education award from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

Connection Resource Bank
...Of Interest

Internship changes student's career goals

FDA intern Matt Ammon, a senior at Paint Branch High School, learns about the environment under the direction of Dr. Buzz L. Hoffmann, chief of the Environmental Impact Section.

Matt Ammon, a 17-year-old senior at Paint Branch High School, has decided on a new career as a result of an internship with the Food and Drug Administration.

In September, Ammon was looking for an internship in geology and earth science to "test the water before I looked at colleges; to see if I really wanted to go into that field of science." He visited Nancy Peckerar, career coordinator at Paint Branch, to see "if the program had anything in my field of interest."

Peckerar called the Connection Resource Bank searching for an appropriate internship. "I've always wanted some centralized place to help me with internship placements." Judy Messitte, Bank coordinator, found several internships in geology and earth science and included a placement at the Food and Drug Administration (FDA) in environmental studies. She sent Ammon the phone numbers. He commented that "from there it was up to me to do the rest."

Ammon made several calls and selected the FDA internship. He was placed under the direction of Dr. Buzz L. Hoffmann, chief of the Environmental Impact Section, Center for Food Safety and Applied Nutrition. Under the guidelines for elective internships, Ammon works eight hours a week (more at the beginning and end of the semester), and attends a weekly hour-long seminar at Paint Branch. A culminating project is required.

On the job for over a month now, Ammon is totally immersed in learning about chemistry, pollution, waste disposal, word processing, environmental law, scientific technical writing, computer applications, traveling on Metro and growing up. This kind of work "is a new experience for me," Ammon admits. "I've broadened my base by becoming more independent."

According to Ammon, "One of the highlights of my internship to date was going with Dr. Hoffmann to the National Institutes of Health to learn about the use of incineration to dispose of waste materials."

Hoffmann explains that "we've never had high school interns before. We've had college students and graduate students as interns. Matt has worked out very well; he raises good questions and is conscientious about his work."

"The major focus of this internship is to familiarize the student with the procedures for assessing the environmental impact of chemicals and to

(continued on page 4)

Bank statistics support use

As the use of the Connection Resource Bank (CRB) increases, it is important to keep records that support its contribution to the students and teachers of MCPS.

The supporting organizations, The Montgomery Education Connection, the Montgomery County school system, and the U.S. Department of Education are interested in the success of this pilot program. The only way to determine that success is through records of resource bookings kept by Judy Messitte, the Bank coordinator.

When Bank computers are placed in schools, phone numbers of resources will not appear on the screens. To book a resource teachers will have to call Messitte who will then do the initial "leg work" to confirm availability before sending the teacher the phone number. Contact with the teacher allows Messitte to count the number of times the Bank is used. This process also saves the teacher time in case a particular resource person is not available and further searching is necessary.

If the Bank is to operate effectively, it is important for Messitte to have accurate records of usage as well as evaluations of resources. To help her do this, please send in evaluations after you have used a Bank resource and refer other teachers to Messitte rather than giving them the names and telephone numbers of those you have used. She can be reached at 279-3125.

The more interest the Bank can accrue, the greater the dividends for all users. ∷

How to Connect

To reach the Resource Bank
call
Judy Messitte
resource bank coordinator
at
279-3125
or visit her in the
Office of Volunteer Services
room 24, CESC

Dr. Vernon Hodge, in jacket, helps Blair AP physics teacher Rick Moats set up lab equipment as students Jim Chambers and Natalie Semmes observe.

Physicist helps teachers plan lab

Last spring, Dr. Vernon Hodge, a physicist with the Nuclear Regulatory Commission (NRC), who normally spends his time reviewing incidents involving safety at nuclear power plants, spent his days off at Blair High School helping set up a physics lab.

Volunteering his time to help teachers and students in Montgomery County Public Schools (MCPS) is becoming a habit for Hodge. After a meeting in January with Dr. Michael Haney, magnet coordinator at Blair, and physics teachers Ralph Bunday and Rick Moats, Hodge agreed to look over a lab manual and equipment and make suggestions about experiments for an advanced group of physics students. He submitted his suggestions to Moats who planned the lab during the summer. In September, Hodge came to Blair to help set up the lab for a nine-week long course involving students "doing many different measurements."

Hodge sees his contribution as "anticipating the kinks in the lab, helping to keep students from wasting their time, helping them to get results."

According to Moats, Hodge "trouble shot the equipment for us. He played with it and tinkered with it and made some valuable suggestions. He saved us time and alerted us to concerns we might not have considered."

In the course of a half dozen visits to Blair, Hodge assisted the school in many ways. At Bunday's request, he submitted a list of suggested science fair and physics projects, including one involving spraying a large piece of plastic with a garden hose and observing how the rivulets of water form as they run down the plastic. This, Hodge said, could lead to a study of how rivers are formed. He also provided a list of articles on physics that could be "digested" by the teacher and explained to students.

Hodge is able to share his expertise with MCPS because NRC offers its employees a "compressed work schedule," which allows them to have a three day weekend every other week. Each time Hodge has volunteered to meet with a teacher or speak to a class, he has been able to spend three to four hours at the school.

The NRC has been active in encouraging its employees to share their experience with the public schools. In January, 1986, at the request of Johnnie A. Moore, public affairs officer for the NRC, Victor Stello, executive director for operations, sent out a memo asking for volunteers to help in science

classes at Blair and Bethesda-Chevy Chase high schools. The NRC has an on-going relationship with the two schools through the Partnerships in Education Program, a White House initiative encouraging federal workers to lend their services on a volunteer basis to the public schools. According to Moore, the NRC has approximately 80 employees working to assist the public schools by lecturing, tutoring, discussing career awareness and assisting teachers.

During his work at Blair, Hodge was able to answer questions about the Chernobyl nuclear accident. He also responded to questions about the nuclear incident that occurred at Three Mile Island.

Commenting on his experience working with students, Hodge suggested that, in addition to helping teachers and speaking to classes, he would enjoy working "with individual students more directly." He added that he will continue to be available, "especially on Friday." He can visit schools on other days with enough advance notice. ■■

NASA laboratory open to teachers

Goddard Space Flight Center in Greenbelt, MD, has a Teacher Resource Laboratory where educators can use National Aeronautics and Space Administration (NASA) resources to do research, gather ideas and duplicate audiovisual materials. The laboratory is available to educators by appointment, Wednesday through Saturday, from 10:00 a.m. to 4:00 p.m. by calling (301) 286-8570 or 286-7205.

Materials available relate to such curriculum areas as astronomy, earth science, aeronautics, mathematics, physical science and life science. Resources are in a variety of formats and include books, booklets, pamphlets, magazines, fact sheets, lesson plans, posters, charts, maps, catalogs, videotapes, audiotapes, slides, filmstrips, photographs, computer software and models.

More than 1,000 slides on aerospace topics are available for viewing and duplicating. A slide duplicator is provided by NASA. A copy stand is also available for educators who wish to make slides of pictures found in NASA publications. More than 100 videotapes,

(continued on page 4)

Interns can help the homeless

Stepping Stones Shelter, the only shelter in Montgomery County to provide services to entire families as well as to individuals, is seeking high school interns to help with the demands of running a 25 room residence.

Located in Rockville, the shelter aids those who are homeless as a result of job loss, fire damage, eviction, personal crisis, or family conflicts.

Internships are available in such areas as assisting in the administrative office, child care, case work (finding employment and housing), baking and cooking with residents and children, filing, typing, answering phones, fundraising, publication of a newsletter, household management, planting gardens and helping with menus.

Helayne Baker, the shelter director, has a staff of three full-time employees, four part-time employees and several volunteers. Candidates for internships are interviewed by Baker and asked to list their expectations. Baker then evaluates with them how their expectations match the shelter's needs. If a student is accepted as an intern, he or she is expected to commit the 10 hours weekly required by the county in an elective internship to earn one credit and to attend a weekly hour-long seminar at the home school. Baker also asks interns to keep a diary of their experiences.

The shelter was established in 1980 by the Gaithersburg Clergy Association and a group of concerned individuals as a non-profit Maryland corporation. It is directed by the Association and a board of 15 members from civic organizations, churches and synagogues.

In 1985, 77 percent of the shelter's residents were family members, while 23 percent were single adults. Forty percent of the shelter's residents were children. Drug addicts, alcoholics and mentally retarded people usually are not accepted because the staff is not trained to handle their special problems.

Built in 1912, the large six-bedroom home can currently house 20 individuals who can negotiate the length of their stay as needed. There is a sliding scale fee for the shelter's services that can be waived. Residents are expected

(continued on page 4)

Stepping Stones Shelter is a 25-room residence in Rockville.

Helayne Baker, director of Stepping Stones Shelter in Rockville, meets several young residents. Stepping Stones is the only shelter in Montgomery County to accept families.

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Shelter interns

(continued from page 3)

to help with the daily running and maintenance of the home.

An internship at Stepping Stones Shelter is an excellent opportunity for any student contemplating a career in psychology, counseling or social services to experience the actual work environment. The shelter's name exemplifies its philosophy of helping people get back into society one step at a time. For those students not contemplating a career in these fields, the internship is a chance to support a worthwhile community program. ∷

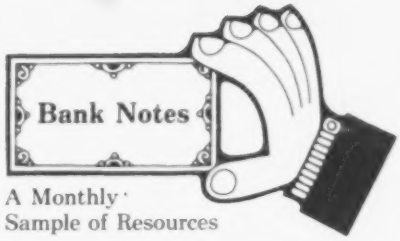
NASA resources

(continued from page 3)

ranging from 5 to 30 minutes long may be duplicated on video recorders provided for this purpose. The duplicating formats include 3/4 inch Umatic and 1/2 inch VHS and Beta. Blank tapes and slide films are not provided.

Videotaped subjects include aeronautics, aerospace careers, earth resources, energy, lunar exploration, manned spaceflight, weightlessness, the space shuttle, space station, technology utilization, weather and others. Audio cassettes containing brief reports on current NASA projects also are available for duplication.

For more information about the Resource Laboratory write Educational Programs Office, Teacher Resource Laboratory, Goddard Space Flight Center, Code 130.3, MD, 20771. ∷



A Monthly
Sample of Resources

Acoustics, ultrasonic testing
Agronomy, plant physiology, soil science
Animation, visual image making
Astrophysics
Building diagnostics—architecture
Cancer, onogenes, malignancy, interferon, recombinant DNA, gene cloning, environmental carcinogens
Chromatography, chemical analysis of food
Computer & the brain—amazing similarities and even more amazing differences
Condensed matter, superconductivity
Defibrilator—used in cardiac arrest
Dolphin communication
Electron microscopy—plant virology
Energy, electricity
Genetics & disease association, immunology
Glassy materials
Insect pathology—microbiology, genetics, biological control
Inventor (200 registered patents)
Liquid nitrogen & temperatures
Nuclear waste management
Nutrition
Organic chemistry
Parasitology
Radiation safety
Role models—Women in engineering science, geology, pharmacy, mathematics
Satellite search & rescue, oceanography & the earth's atmosphere

Environmental Opportunities

(continued from page 1)

provide actual case experience in an office setting. This involves working with senior staff scientists in evaluating environmental data and preparing written correspondence and reports. As part of this work, Matt is learning how to use a word processor and how to enter and retrieve environmental data in a computerized environmental data base."

Ammon and Hoffmann see the internship experience as mutually beneficial. Ammon comments that, "They treat me with respect and give me a lot of responsibility. I'm getting a lot of work experience which, before college, may be better than money. 'Hands on experience' is the best way to learn! Dr. Hoffmann has given me information about colleges to look at and courses to look for in the curriculum."

As a result of Ammon's work, Hoffmann and other staff members have more time to pursue other work. According to Hoffmann, "Ammon's usefulness to the Environmental Impact Section will continue to increase as he gains experience."

Because of the internship experience, Ammon has redirected his career goals. "I want to go into environmental sciences. I am looking at colleges with strong environmental programs." Ammon has nothing but praise for the scientists who supervise him. "Six years from now I might be sitting in the same office with them. You never know."

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection
Resource Bank
...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

MCPS Connection Resource Bank

...Of Interest

Gallaudet graduate student Cindy Read teaches the sign for "cat" to fifth and sixth grade students at Weller Road Elementary School.

Experts visit classes

Rita Segerman's classes have been busy watching lasers, examining holograms and observing fiber optics as scientists have filled their classroom with models and experiments. Four classes of 5th and 6th graders at Weller Road who participate in Area 1's "Thinking Opportunities for Kids" (TOK) gifted and talented pull-out program have met with scientists, physicians, and physicists provided by the Connection Resource Bank.

Friday's class met with Jesse Berry, from Vitro, who spoke on the "Science of Sound." According to Segerman, "he used ordinary things children were familiar with for demonstration purposes. He used a slinky to demonstrate sound vibrations and brought in a tin can telephone that really worked." Explaining that sound is measured in "hertz," Berry showed on a screen what the sound of a phonograph record looked like.

Dr. James Rosborough, an ophthalmologist, came to visit Thursday's class. He explained how the eye functions, how contact lenses are made. He explained his job and found students surprised to learn that as an ophthalmologist he can perform surgery. Using a model of the human eye, he demonstrated how the brain is affected by sight.

Dr. Jordan Goodman, a physicist from the University of Maryland, was the speaker for Monday's class. His

(continued on page 4)

Teachers to be recognized for resource use

The Montgomery Education Connection (MEC) wants to recognize teachers who have made outstanding use of business and community resources. Beginning in February, one teacher each month will be selected from nominations submitted by school system personnel, Education Connection members, or self-nomination.

Each month's winner will be granted a day of administrative leave to visit a business or government agency that functions as a resource for MCPS. Funds for a substitute teacher will be provided by MEC. In addition, an honorarium of $100 will be awarded for the teacher's private use. "Of Interest," the Resource Bank newsletter, will feature an article on each teacher selected.

Information about how to submit nominations will appear in January's newsletter. ::

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- **Get mentors for your students**
- **Locate tutors**
- **Arrange field trips and internships**

More than 850 volunteer experts are in the data base.

To reserve a resource, call Judy Messitte at 279-3125.

Writer discusses career, survival, leadership

George Valdez, a technical writer with Vitro Corp., has visited Montgomery County high schools and civic organizations and talked about three very diverse topics: careers in technical writing, analysis of survival skills, and the challenge of management and leadership.

For students in Sharon Henry's language writing workshop classes at Richard Montgomery HS, his presentation on technical writing was surprisingly participatory. Valdez warns his audience in the beginning "to be prepared to go to work."

Explaining that technical writers write manuals and instructional material for an audience they will never see, Valdez emphasizes the importance of giving readers all the material they will require. Precision and accuracy are vital. Because he writes for the military, if he writes imprecisely it can cause loss of life, people can "blow up." A ship may be unable to navigate if parts are not constructed and operated properly. "Do not assume anything," he admonishes.

"I work almost like a translator," Valdez says, explaining his work at Vitro. "I help produce technical documentation for many of our engineering projects. This involves taking technical material and writing it so that a layman can understand it. Most engineers would rather create than write the material to explain what they created. They tend to write for other engineers and not for a general audience." Valdez recommends that technical writers have a background or degree in engineering, computers, the sciences or in mathematics, as well as a solid foundation in journalism or English.

"It is a very diversified field and technical writers are needed in such areas as engineering, computer sciences, the legal profession, the medical profession, and movie writing. During his lecture Valdez passes around an original "working copy" of the script to the movie "Star Trek II" to demonstrate the contribution of technical writers. Pointing out a quotation in the script from "A Tale of Two Cities," Valdez reads from his copy of that classic, explaining that, " I encourage students to read many different kinds of literature. A well-read writer will use a broad base of literature."

George Valdez is a technical writer with Vitro Corporation who shares his expertise with MCPS secondary students.

The profession evolved, according to Valdez, because many engineers, lawyers, and doctors didn't have time in college to take necessary writing courses because of curriculum demands in their fields.

Henry relates an audience participation project that fascinated her classes. "He asked the kids who thought they were good at explaining things to raise their hands, and he challenged them. Taking off his jacket and putting it on the back of a chair, he asked those kids to tell him in ten or fewer lines, how to remove the jacket from the chair and put it on himself. He asked them to write instructions and read them to him as he did what they said. Out of thousands of people he has presented this challenge to, only four have succeeded." A girl in one of Henry's classes became the fifth.

Valdez explains that his lecture on survival grew out of his experience in the navy's survival school and his desire to encourage people to read. He has selected three books, "King Rat," "Papillon," and "One Day in the Life of Ivan Denisovich," and studied the main characters and what they did to survive. His lecture, an examination of the characters' will to live, has been presented successfully to secondary students in Montgomery County, as well as to inmates at the Montgomery County Detention Center who are working toward a high school diploma or college degree.

A recently developed lecture on management and leadership is directed at people who are considering working at these levels. "I try to explain that there is a difference between being a manager and being a leader. A manager will manage things right even if it's wrong, but a leader will do the right thing. Leadership is something you develop slowly. Leaders are made, not

born. A good leader takes full responsibility for his actions as well as those of his subordinates."

Henry's recommendation of Valdez is enthusiastic and positive. "He is extremely good with audience feedback and handling kids. He is a great role model." She adds that he draws on his experiences in the navy and Viet Nam to provide examples of the importance of a technical writer.

Valdez is asked to speak "about 10 or 12 times a year." He enjoys coaching girls' soccer at Parkland JHS as well as lecturing. "If I can just help one person in the community, it's really worth it. Lecturing also gives me an idea of how hard teachers are working. Their jobs are not easy." ::

Young Astronaut Program seeks chapter leaders

The Young Astronaut Program, designed to whet the curiosity of elementary and junior high school students about the challenges of space exploration, is hoping to start new chapters in Montgomery County and is looking for chapter leaders.

Groups of up to 30 students meet after school or during the school day and are led by volunteer adults or teachers. Educators can use the materials provided by the program in their classroom instruction. With 9,300 chapters active nationally, the Young Astronaut Program offers MCPS approved curriculum materials emphasizing a new theme each year.

Materials are received each month and cover four categories. "Toys That Teach" shows how the action of familiar toys can lead to scientific investigations on earth and in space. "Physics of Fun" uses children's experiences at amusement parks, playgrounds and sports events to introduce physical science concepts. "Recycling Science" draws on common household items as resources for science experiments. "Spacewatch" uses the night sky as a celestial blackboard for in-class and take-home astronomy and computer science activities.

According to Dr. Frank B. Withrow, director of technology services on the Young Astronaut Council, "This year's theme, 'Living in Space,' offers students a wide variety of problems that test their creativity. How do you keep fit in space? How do you exercise? How do you take enough air with you for long periods of time? What should you eat in space, and how? There are all kinds of interesting phenomena because of eating. You can't pour. You have to squeeze."

The program sponsored a contest asking students to design a game to be played in zero gravity and on Mars, whose gravity is 40 percent of that on Earth. Each year, four posters and five newsletters are distributed to chapter leaders relating to the general theme.

An international program, the Young Astronauts is active in four countries: Japan, the United States, Canada and the Soviet Union. As a result of an agreement on youth exchange between President Reagan and Secretary General Gorbachev at their meeting in Geneva, ten young astronauts from the United States, ages 13-16, were selected by competition, and traveled to the Soviet Union this October for two weeks. In December, ten young cosmonauts will visit this country. Two young astronauts from the United States went to Japan to inaugurate that country's program.

A quarter of a million children are involved in the Young Astronaut Program in the United States. Chapters also can be found in the American schools in 29 other countries.

For information about starting a new chapter and becoming a chapter leader, write Young Astronaut Council, P.O. Box 65432, Washington, D. C., or call Judy Messitte, resource bank coordinator at 279-3125. ::

Do you have any resources to share?

If you know of resources that could be added to the Connection Resource Bank, please consider sharing them. Even though there are more than 850 resources already listed in the Bank, there are regular requests for things not listed there.

Judy Messitte, Bank coordinator, will place resources in the data base so as to protect the privacy of phone numbers and prevent over use of individual volunteers. Persons in the Bank may request that they be called for specific schools, areas or ages. They also may indicate the number of bookings they will accept and their preferred time of day.

At the present time Messitte is filling only requests in science and mathematics. The current list of resources is almost entirely in these two areas.

To add resources to the Bank, please call Messitte at 279-3125 or send a note in the pony to The Connection Resource Bank, CESC, Room 24. ::

Judy Messitte demonstrates the Bank to visiting educators Meryl Moran and Elaine Seikaly of Takoma Park Intermediate School, Joy Odom, coordinator of secondary mathematics, and Pearl Flowers, secondary math teacher specialist.

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Demonstrations

(continued from page 1)

presentation on "light and color" was outstanding, according to Segerman. Goodman used a hand truck to bring to class all of the equipment needed for his demonstrations. He spent half an hour setting up and an hour and a half talking with the children. He brought a sodium light that made the spectrum especially vivid, and gave each child a defraction grating screen through which to observe. Among many experiments involving light was an explanation and demonstration of fiber optics and its use in physics. A laser beam was bent traveling through water; convex and concave mirrors turned images upside down. Secrets of using reflection in magic tricks were revealed. A color wheel spun quickly became a white blur. Goodman showed the class the properties of black light and loaned each student a pair of 3-D glasses, explaining their effect on vision.

For Thursday's class, Segerman invited Dr. Tom Lettieri from the National Bureau of Standards to speak on lasers and holograms. He brought in holographic pictures in various forms: greeting cards, stickers and framed pictures. He explained that if you break a hologram, the entire image is retained on each fractured piece. He also used lasers to demonstrate that light bends.

Children react enthusiastically

Students in Segerman's classes expressed appreciation and enthusiasm in the thank you letters they sent to the guest speakers. "I learned a lot that I didn't know." "You gave good examples and you talked at a level that anybody could understand and I liked that." "You were the most valuable part of my day." "You gave me good information that I need." "I hope all the other kids will be able to learn from you."

Student "signs" with expression.

Read demonstrates signing.

Students travel to Gallaudet University

Through the Resource Bank, one of Segerman's classes traveled to Gallaudet University and received a general tour and a demonstration of sign language and cued speech. "The speakers were delightful; their manner with children was excellent. The children saw a video about cued speech and received extensive materials from both groups," says Segerman.

Katie Swanson, a fifth grader at Weller Road, summed up the students' reactions to this experience. "Thank you for letting us visit. It was very interesting. Now, after seeing an actual demonstration, I understand how difficult it must be to be hearing impaired and have to learn sign language and cued speaking. It was strange to see the people in the cafeteria and outside using sign language instead of talking. It must be very hard for them to walk through a public place and see other people talking and listening to each other, knowing they can never hear other people. I learned a lot."

Graduate student teaches signing

As a result of her students' interest in what they saw at Gallaudet, Segerman called Jo Israelson, from Gallaudet's Outreach Program, and arranged for graduate student Cindy Read to visit her Tuesday class for five consecutive weeks to teach American Sign Language and extend her students' deaf awareness. Read's goal is "to teach about deafness, not just the language, but the culture as well. I hope to give them a workable knowledge of signing."

Segerman recommends Resource Bank

Segerman advises teachers who use the Bank "to speak with the speakers to prepare them about your class, to learn their expectations and to share yours."

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Connection
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Steven Dickoff, principal
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William Mills, photographer

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Paint Branch High School
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Lyon demonstrates colonial woodworking.

Turtle returns home after school visit.

Naturalist brings outdoors in

The Maydale Nature Center in Silver Spring exports Sam Lyon, an "interpretive naturalist" who dresses in buckskins and a leather apron and visits schools to introduce students to live animals, insect specimens, Native American skills, colonial wood carving and phenomena in nature such as hibernation.

Lyon's goal is "to somehow have kids relate to the programs." Most of his lectures and demonstrations are requested by elementary schools. Lyon observes that "after ages 11 or 12, we lose them to other developing interests."

Arithmetic and Nature

At South Lake ES in Joseph Andrews' class, Lyon will be discussing arithmetic and nature. "We're going to measure different kinds of trees right on the school property. Then we'll ask how many 2 x 4's could be made out of each tree. We'll work out a math program. It can take more than an acre of trees to make a house."

Lyon explains that many students today see a field that has been cleared of trees, and because they have been made environmentally sensitive, they feel that to chop down trees is "bad." "They need to understand that chopping down trees is sometimes necessary. Wood has become a very important part of our lives."

The Insect Man

When Lyon becomes the "insect man," he brings cases of specimens to class for students to examine. Included are insect parts such as butterfly and fly wings that can be examined under a microscope.

He makes a point of discussing insects as a natural part of the environment, explaining that "the government allows many parts of insects' bodies to be processed in foods. Rat hair can be found in raisins, and weevil parts are common in peanut butter. It grosses kids out, but brings to their attention the fact that insects are a part of their lives."

The Colonial Woodworker

As the "colonial woodworker," Lyon dons a huge leather apron he made himself, and sits before a cooper's bench (also handmade) to whittle, scrape and shave wooden utensils such as spoons, dippers and hammers. Using tools that would have been used by the colonists, he "tries to get across the lifestyle of the early 1800s." Students are invited to help carve and are allowed to keep the artifact the class creates.

Live Animal Show

Lyon often visits classrooms accom-

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Microbiology demonstrated by consultant

Ruth Simione, an educational consultant who works for the American Type Culture Collection (ATCC), uses a sweet potato and Clorox to explore the world of microbiology with MCPS students. With slides, models, pictures, charts and microscopes, she invites students to meet bacteria, viruses and fungi "up close and personally."

The ATCC is an independent, nonprofit organization dedicated to the acquisition, preservation and distribution of microorganisms, viruses, cell cultures and recombinant DNA materials. ATCC has speakers who are available to speak at seminars, workshops and similar meetings on a variety of topics. Their areas of expertise include preservation techniques, characterization of cells, genetic diseases, protistan evolution, cryopreservation, incorporating microbiology into the classroom and more.

At Burning Tree ES, Simione asks 6th graders to consider what would have happened if antibiotics hadn't been invented. Using a sweet potato to demonstrate the difference between a treated and untreated puncture wound, Simione draws a line across the potato, dividing it in half. Using a nail or fork, she punctures both ends of the potato. One end is dipped in Clorox; the other end is left untreated. Over a period of days, bacteria and fungi grow in the untreated end of the potato. Discussing the value of disinfection, Simione relates this experiment to the puncture wound resulting "if a kid steps on a nail."

To demonstrate that skin is a barrier to infection, Simione again turns to fruit and vegetable models. Students are shown two lemons. One is a healthy-looking fruit; the other is rotted and "gross looking." After again dividing the fruit in half by drawing a line around it, Simione asks students to drop the lemon on the floor and scrape it across a desk, damaging only one side of the skin. She then rubs the entire surface of the "good" lemon with the "bad" lemon and puts the experimental fruit in a plastic bag for 7 to 10 days. The damaged side will show more infection more quickly.

Tanks of liquid nitrogen store some of the 40,000 different strains of microbes at the American Type Culture Collection in Rockville.

According to Simione, "You can do neat things with balloons and yeasts." She suggests mixing yeast and warm water in test tubes and putting balloons over the tops of the tubes. As the yeast ferments and makes alcohol, the balloons will inflate. However, Simione warns that the balloons must be the "cheap" kind that are very thin and easy to blow up.

Simione taught secondary science for ten years before consulting for the ATCC. Discussing her special interest in microbioloby, she explains that "teachers seem to shy away from experiments in microbiology fearing that they may not be safe." She emphasizes that "there are some really good, fun things you can do that are perfectly safe."

Many of the experiments that Simione brings with her have been "grown" beforehand. She explains that her daughter has a habit of chewing on the erasers of her pencils. To prove how unhealthy this is, Simione takes an eraser and dips it into a growth medium in a petri dish. The results are a graphic demonstration of the microorganisms that are in the air and on all environmental surfaces. To explain the importance of washing hands before eating, Simione shows students a petri dish with growth medium containing the imprint of her daughter's hand after petting a dog. The results are "gross" enough to demonstrate the point. The dog's paw print in another dish also blooms with microorganisms.

At the secondary school level, using apples and oranges, Simione has the class divide the fruits into quadrants and remove some of the wax that is used to protect the skin of the fruit and make it look appetizing to the customer. After damaging the unwaxed quadrant of the apple skin and exposing it to mold, students observe over a period of days that the unwaxed and damaged area is much more susceptible to mold. Simione also discusses the differences between bacteria and viruses.

High school students may visit the American Type Culture Collection which is located in Rockville. Established in 1925, ATCC's goals have been service, research and education. It is the most diverse microbial germplasm bank in the world, with current holdings totaling more than 40,000 different, highly characterized strains. Scheduled in advance, visitors (who must be a least 16 years of age) can see the liquid nitrogen rooms, the labs, the workshop facilities, a slide show about the company and its work, the research library and the greenhouse where plant virus research is done.

Among other public services, ATCC provides judges for the Montgomery County Science Fair and offers plaques to the winners in the field of microbiology accompanied by monetary awards to winners' schools for the purchase of science equipment.

Simione encourages exploration in the field of microbiology. "When people talk about microbiology, they talk about the bad stuff. Microorganisms are responsible for good stuff too. Our bodies couldn't function without them." Speakers from the ATCC are willing to share the "bad and good stuff" with MCPS students. ■

Mentors guide lab research

Bud Koelsch, who teaches ninth grade lab science at Banneker JHS, requires that all of his 117 honors students have mentors to help them with their research projects and has turned to the Connection Resource Bank (CRB) for help in locating qualified volunteers.

"I delay using the Bank until I know the kids have tried to get a mentor on their own and have been unsuccessful," Koelsch explains. "Then I give them a brochure about the Bank to read and we discuss their project." Once teacher and student have agreed upon a specific statement of need, the student fills out the CRB request form, which Koelsch initials and sends through the pony to Judy Messitte, CRB coordinator.

Shannon Cavaluchi needed a mentor who could advise her about a project concerning solar energy. Koelsch submitted a request form to the Bank and two weeks later Cavaluchi had the names of two mentors who had agreed to advise her in her work.

Delays often occur between resource requests and confirmation because Messitte must reach the volunteers at their place of business and often this necessitates four or five phone calls over a period of many days.

Cavaluchi called the first mentor who gave her "suggestions about different types of things I could do to expand my project. I told him I would do some research on what he had suggested and would call him back. Since he lives in Rockville and I live in Silver Spring, we decided he could help me over the phone. He said to call him anytime in the evening. He gave me suggestions and a better understanding of solar energy."

Bree Bazemore needed help with her research project on air pollution and was put in contact with a mentor who works for the Department of the Army in environmental services. Although his specialty was in water pollution, he promised to help her find the information and instruments she needed to complete her project.

Discussing the broad goals of the research project, Koelsch explains that he is attempting to teach more than just facts. "To me the value is the process." Learning to use periodical literature, the yellow pages, the telephone, different libraries, forces the student out of the classroom and into the community.

Use of a variety of resources "helps the student to understand more clearly the true nature of research." Contacting a mentor is a new kind of responsibility.

Koelsch continues, "The value of having a mentor is so great. Kids come to talk with me about projects they want to do and I don't have the expertise they need. The kids have the ability, but they need the guidance. One person alone can't guide 117 kids."

He describes a common problem. Students initially may have trouble getting in touch with their mentors. They often find it difficult to phone them during the day, and in the evening most offices are closed. Koelsch encourages his students to try to call mentors during the day and has made his office phone available for this purpose. "Frustrations are all a part of the learning process."

Koelsch notes that the amount of help a student can get from a mentor depends, to a great extent, upon the students being aggressive and keeping in contact with the resource.

"Each year I have challenged my students more, and they never have disappointed me. Some projects are so good, it's scary. The key is the mentor."

Bud Koelsch, lab science teacher at Banneker JHS, advises Bree Bazemore on her research project.

From Koelsch's office, Bazemore calls mentor at the Department of the Army.

Teacher award forms available

Nomination forms for the Teacher of the Month Award are available in all school offices. The award recognizes teachers who use business and other community resources to enhance the educational program and provide real-life experiences for their students. Recipients will be granted a day of administrative leave to visit a business or government agency that functions as a resource for MCPS. Funds for a substitute teacher and an honorarium of $100 will be provided by the Montgomery Education Connection.

Teachers may be nominated by their peers, principals, parents, members of the Montgomery Education Connection or through self-nomination.

Nominations are due on the 15th of the month preceding the selection and should be sent to Sally Keeler, CESC, Room 112. Winners will be announced in "Of Interest."

A Monthly Sample of Resources

Anabolic steroids
Bank, full service commercial
Cosmology & planetary exploration
Deaf awareness workshops conducted by hearing impaired staff
Diabetes & digestive juices
Edible, poisonous & endangered plants of Maryland
Effects of cigarette smoking on health
Electric cardiology, the marriage between engineering, patient and doctor
Evolution as a response to multiple stresses
Hazardous waste, cleanup, disposal practices & problems
Human brain, modern concepts in brain science
Kinesiology
Nature, its basic structure
Nerve & muscle diseases
Paramedic
Poisonous & medicinal plants
Securities & bond sales
Structural engineering
Sugar & high blood pressure
Time concepts, Religious/physical
Toxicologist
U.S. Coast Guard, duties & responsibilities
Viruses - at the edge of life

Naturalist

(continued from page 1)

panied by several nature center residents. A black rat snake, box turtle, snapping turtle, painted turtle and toad are part of the "live animal show" Lyon has taken to many schools. Demonstrating an understanding of his audience, Lyon explains that, "Kids like action. I always let them touch the animals I bring. With woodworking, I let volunteers help make things. I try to break the program up with a combination of lecture, movie, slides and actual hands-on experiences.

Native American Program

The program Lyon presents on Native Americans is made more authentic by the buckskin outfit he made and wears. "I can speak some Sioux, so when I say hello, introduce myself and explain where I come from, in Sioux, I make it clear that the Native Americans did not speak English." Some students are surprised by this fact.

In a sack made of deer hide, Lyon brings a toothbrush, dental floss, a cup, gloves, a hat, clothing, a fly swatter, soap, bug spray, deodorant and toilet paper, things students take for granted. "I try to give my audience a feeling for life during those times. I want them to understand what these people didn't have and how they survived."

A demonstration of flint knapping (striking flint with a stone to create a sharp edge) serves as a basis for explaining how to make arrow heads, and why it was necessary to kill animals in order to have clothing and food.

Black rat snake is class visitor.

History, Hibernation and Hikes

One of Lyon's more fascinating anecdotes is his explanation of the history of toilet paper which was developed in 1857 by Joseph P. Gayetty of New York. He also presents a program on hibernation and leads "sensory hikes" on school grounds. In the future, Lyon hopes to develop programs on fossils and the weather.

The Maryland National Capital Park and Planning Commission has centralized its extension program in one person, Sam Lyon. With a bachelor's degree in wildlife management, Lyon brings to Montgomery County's students an expertise in our natural environment, a sense of history, and an interest in sharing what he knows. ■■

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

Connection Resource Bank

...Of Interest

Dr. Catherine Mabe demonstrates how to give her dog Daphne a physical as she meets with 5th and 6th grade girls from area gifted and talented centers to discuss what it is like to be a veterinarian.

Female students are challenged to excel

A conference on alternative careers for women in science and mathematics to encourage more gifted females to enroll in advanced technical courses was held at Takoma Park Intermediate School on Jan. 9. The conference provided an opportunity for 200 5th and 6th grade girls from area gifted and talented centers to share the experiences of 14 women who are successful professionals in science and mathematics. Students came from Burning Tree, Lakewood and Cannon Road elementary schools, as well as from the 7th grade magnet program at Takoma Park.

The presenters represented a broad variety of career opportunities, including mathematics, physical sciences, veterinary medicine, statistical analysis/research, computing, corporate careers at IBM and as doctors and participants in medical teams.

Workshops were designed to answer the following questions: What is my job? What do I do on a day-to-day basis? How did I choose and prepare for this job? What do I like and dislike about this job? Students preselected three workshops to attend. Each presentation was 40 minutes long and was attended by 15 to 20 students. Most workshops were presented three times.

(continued on page 2)

Dr. Judith Ackerman, Mathematics

Dr. Judith Ackerman, professor at Montgomery College, encouraged her audience to discuss why girls tend to shy away from mathematics as a career. She explained "the language of mathematics and how we can communicate with people in this language." Ackerman pointed out possible careers in math that included data processing, mathematical accounting, economics, statistics, actuarial work, market research, computer systems analysis, medical research, architecture and teaching.

Ackerman explained that 75 percent of all college majors require mathematics and result in higher paying jobs. The 25 percent without math requirements often limit a graduate to lower paying jobs. She encouraged her young audience to avoid being locked out of many professions because "you lack the math background."

Student questions were practical and direct. "Where does math start getting really important?" Ackerman responded that mathematics "accumulates from elementary school to junior high school and through high school. You build on all you learned before about numbers." Another student wondered when she would ever use some of the mathematics she was required to study. Ackerman explained that "some math is every day math; some is reserved for very special topics. Mathematics is not like English which is a language you use every day."

Following a discussion of problem solving, Ackerman shared with students the things she likes about her job as a professor and the aspects she does not enjoy.

Rita Kirshstein, Research Analyst

Rita Kirshstein, a research analyst in the MCPS Department of Educational Accountability, shared her educational background with her audience. "I loved math in high school and I began as a math major in college. Since I liked math, I always scored very well on tests. I like the applied mathematics better than abstract math. I particularly like word problems. As a result I got into sociology and combined math with the social sciences."

Explaining her job, Kirshstein continued, "I enjoy the practical application of math. I am now studying why female and minority students are not getting into the fields of science and math in large numbers. I enjoy developing questionnaires to get information. For example, I am developing a questionnaire for girls to find out their attitudes toward math, and one for parents to find out their experiences and attitudes toward math. Complementing these two questionnaires will be one for teachers to determine their experience and attitudes about teaching mathematics. In my department, we collect data and use the resulting statistics."

Dr. Catherine Mabe, Veterinarian

Dr. Catherine Mabe is a veterinarian at the North Rockville Veterinary Hospital who brought her dog Daphne with her to demonstrate how to give a routine physical examination. Explaining that most veterinary colleges are part of state universities, Mabe encouraged her audience to consider a career in veterinary medicine because "more and more vet schools are opening up."

Mabe described the variety of choices available to veterinary students: working with pets, farm animals, zoo animals (the most dangerous field and the one which deals with the widest variety of animals), working for the federal government and in laboratories.

As a small animal vet, Mabe explained that she enjoys helping animals, makes a good salary and feels good about working in a community. The things about her job that are difficult include dealing with animals that are mean, scared and may bite. "It can be dangerous sometimes. It's difficult to tell what's wrong with animals because they can't tell you. You have to figure it out. If you like puzzles, it's great! I work 11 or 12 hours a day. The hardest part of my job is when an animal comes in that is too sick to help."

Women in Technical Careers

As representatives of women in technical careers, Gwendolyn Hines (left), a systems designer, and Cecelia Handy, a computer programmer with Vitro Corp., explained the benefits and drawbacks of their work. Hines said that, "I get a chance to apply mathematics. I like to use as many skills as possible, and I enjoy being creative. I like to interact with a lot of people. I like my pay, and I like to travel. I have been to California, New York, and Massachusetts. I don't like the fact that there are not enough women in my field. When I go to a conference, sometimes I am the only woman." She added that she does not enjoy the repetitive work her job sometimes requires.

Handy discussed her background in mathematics and education. "I began as a teacher and taught for three years. Then I changed careers."

Hines clarified how her career meshes with Handy's. "She designs what a system should do to get the information wanted, and I make the system do what she wants."

The presenters discussed technical careers that are becoming more available to women. In physics, they defined careers as a geophysicist, energy engineer, ocean engineer, electrophysicist and applied physicist. In computer sciences they mentioned work in such areas as teaching, designing and programming, operating and testing, installing and maintaining.

Women in Medical Research and Computing

Ann Sutton, a microbiologist with the Food and Drug Administration, and Dr. Rachelle Heller, an electrical engineer with the Electrical Engineering and Computer Science Department

(continued on page 4)

Third and fourth graders at Jackson Road ES examine a gift from the Commissioner of Patents and Trademarks.

Patents can protect ideas

Inventions were "happening" all over the classroom when two visiting officials from the U.S. Patent and Trademark Office spoke to 45 gifted and talented 3rd and 4th graders in Eleanor Brown's classroom at Jackson Road ES. Anne Kelly, director of policy and resources, and Don Kelly, executive assistant to the Commissioner of Patents and Trademarks, explained the history of patents using a combination of games, chalkboard sketches and overhead projections.

Don Kelly challenged the class to think of an invention that would eliminate the problem of slimy soap bars common in every home. "Can you think of some way we wouldn't have to put up with this problem? Raise your hands." When hands flew up from every corner of the class, Kelly shouted to his colleague, "Ideas are exploding all over! Are you getting all these ideas down? We're going to be rich!"

He proceeded to illustrate the suggested inventions on the board. "Now let's give these inventions a trademark, a name, so you will always get the thing you ask for. You're never disappointed because the trademark lets you know what you're going to get. That's why people are sometimes willing to pay more money for things covered by well-known trademarks."

Kelly led the students through the next step in the patent process. "How would you protect these ideas so no one else will steal them? We need some way so that when you tell your ideas to someone, you have a document that guarantees whoever uses your idea will pay you for it. A patent that is issued for 17 years makes it possible for people who invent things to get paid for their inventions."

Anne Kelly took over the discussion and showed overheads of well known trademarks such as MacDonalds, Levis, and Coca Cola. Students began pointing out trademarks they were wearing: Adidas, Converse and Star Wars shirts.

Kelly explained that, "Trademarks are all about trust. People register their marks so no one will steal their intellectual property."

Together, the Kellys led students through a series of drawings of well-known inventions, explaining the difference between a design patent which shows how an invention will look, and a utility patent, which shows how it will work. They discussed the patents issued to the Wright brothers for their flying machine, to George Eastman for the development of the box camera, to Thomas Edison for the light bulb. They related stories about President Lincoln, who is the only president issued a patent. In 1849 Lincoln developed an idea to raise boats stuck on sand bars. In that same year, the safety pin was issued a patent.

Historically, the patent system is mentioned in the Constitution and was established in 1790. Thomas Jefferson was the first patent examiner. The first patent, which was granted for potash used to manufacture soap, was issued in 1790. Since that time, more than 4.5 million patents have been issued.

Don Kelly explained that there are basically three reasons why inventors invent. The first of these is to solve a problem. "George Eastman's equipment was big and heavy. He wanted to take photographs when he was camping. The key is that he recognized a problem. He came up with the idea of the box camera to solve this problem. He called it Kodak because he liked the letter K and played around with letters until he came up with the meaningless word. Just the word is worth millions of dollars today."

The second reason inventors invent is that someone has a theory or idea and keeps working on it. "Louis Pasteur had a theory about rabies and kept working on it until he was able to demonstrate that his vaccine could save a life."

The third reason inventions are discovered is because of an accident, or luck. "At Du Pont, scientists who were heating chemicals got to talking and let the chemicals cook too long on the stove. The result was a very smooth

(continued on page 4)

Careers in science and mathematics

(continued from page 2)

at George Washington University, also acted as presenters and encouraged their fifth and sixth grade audience to consider careers in mathematics and the sciences.

Women in Corporate Careers

Peg Canale (left), Paula Briki (right) and Barbara Bullock represented Corporate Careers at IBM. They repeated the theme of challenge expressed by all the presenters. Explaining that they are responsible for getting people excited about selling a product, each stressed the importance of cooperation in the give and take of corporate business. Each enjoys problem solving, but mentioned the difficulties of sometimes doing unexciting work, of having "homework" to bring home, and, as managers, of having to make value judgments about employee performance.

Women as Doctors and in Medical Teams

Dr. Lori Fitzpatrick (left) and nurse Kim Wilkins from the National Institutes of Health addressed the issue of women as doctors and as participants in medical teams. Fitzpatrick commented that, "What I like about being a doctor is that you really get to make your own decisions. I'm very independent about what I get to study and what I get to do. If you like to help people, it's a good career." Wilkins also discussed the helping aspects of her career.

Women in Physical Sciences

Freda Kurtz (left) is an operations research analyst and is currently the national president of Federally Employed Women. She joined Capt. Connie Custer (right), Air Force Systems Command, and Maj. Linda Pearson, in encouraging young women to pursue professional careers with the armed services and the federal government. Custer emphasized that women can get scholarships for college more easily if they are interested in technical careers. All three women encouraged their audience to think beyond a bachelor's degree. Custer explained that, "They are not promoting many people who do not have master's degrees." The presenters stressed the fact that in their careers, it is important to be able to get along with other people and work as a team.

Planned by Magnet Resource Teacher Elaine Seikaly and Principal Stephen Tarason with help from the Connection Resource Bank, educational partnerships with the U.S. Public Health Service and IBM, the workshop sessions were designed to broaden awareness of career opportunities for women. The conference participants shared information and, by their examples, confirmed the opportunities about which they spoke. ∷

Don Kelly invites students to suggest new inventions.

Patents and trademarks

(continued from page 2)

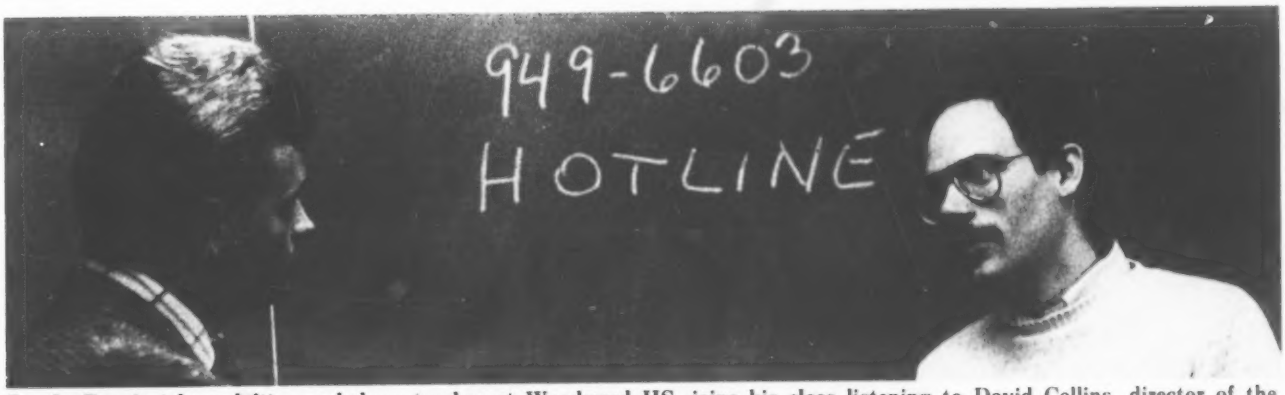
and slippery product called Teflon. Dynamite was accidentally discovered by Alfred Nobel. His brother and two cousins had been killed when they dropped containers of nitroglycerine. Nobel was unpacking vials of nitroglycerine that had been packaged in boxes filled with feldspar (soil). A glass tube fell from the table into the feldspar and its contents were absorbed. Nobel discovered that if he hit some of the moist feldspar with a hammer, it exploded."

Kelly concluded that, "Whenever you run into a problem, don't accept it as it is. Try to solve it. Think about problems and solutions." Solutions can be patented. They are called inventions. For 17 years, an idea will belong to the inventor. After that it belongs to everybody. "Patents are deals inventors make with the government."

To pleas from the students for "more stories about inventions," Don Kelly responded, "We're looking at you guys as future inventors." He and Anne Kelly presented the school with a book called "Small Inventions," signed by the Commissioner of Patents and Trademarks.

A 4th grader returning to her class was asked if she had enjoyed the program. "When I fall asleep, it's boring. When I stay awake, it's neat." No one fell asleep listening to this presentation. ∷

Anne Kelly (left) and Eleanor Brown show patent commissioner's inscription.



Randy Bosnic (above left), psychology teacher at Woodward HS, joins his class listening to David Collins, director of the Montgomery County Hotline.

Suicide discussed with Hotline director

Eleventh and twelfth grade students in Randy Bosnic's psychology class at Woodward HS had many questions for David Collins, the director of the Montgomery County Hotline when he visited their class.

After writing the Hotline telephone number on the board, Collins briefly explained the services provided by the crisis center. The Hotline is a 24 hour crisis intervention, listening and suicide prevention center for Montgomery County, staffed by volunteers. The center gets 40,000 calls a year, 800 a week, or more than 100 calls each day. Most calls deal with depression, relational problems, sexual issues, pregnancy, aging, drugs or alcohol.

Student: *What do you do when you get a suicide call?*

Collins: We break such calls into three levels. Level 1 refers to people who are just thinking about it, and it is not abnormal to think of it. Level 2 is someone who is starting to make plans. We question them about their plans to see how close they are to acting. Level 3 is someone who already has initiated action and is the least common level. Ten to 15 percent of all our calls are suicide calls and of this number, ten to 15 percent are level 3 calls.

Bosnic: *What are signs of suicide? Are some people threatening suicide to get attention or are they all serious?*

Collins: We can't tell the difference so we take all suicidal threats seriously.

Student: *What other kinds of calls do you get besides suicide?*

Collins: Rape calls, child abuse, calls from the homeless, those who need fuel, are out of work, are depressed.

Student: *Have you ever asked callers how successful or helpful the Hotline has been?*

Collins: Sometime we ask callers to call a special number anonymously to say if Hotline has helped them, but few follow through.

Student: *If a homeless person who needs food calls, what do you do?*

Collins: We try "to hook them up" with emergency shelters and food banks.

Student: *How do people hear about you? How do you advertise?*

Collins: We put flyers in grocery stores; we make public service announcements on the radio.

Student: *Where do you get funding?*

Collins: Partly from the county, partly from United Way and we do fundraising ourselves.

Student: *Do your volunteers get personally involved with callers? Do they offer their own homes for shelter?*

Collins: No. Anyone who does meet a caller will be fired. We must be anonymous.

Student: *How do you pick your volunteers?*

Collins: We advertise for them. You must be a high school graduate or at least 18 years old, and must complete our training program. Our volunteers include housewives, college students, lawyers, blue collar workers.

Student: *Is there any way to find out your success rate in terms of suicide?*

Collins: We don't know unless callers have given us a phone number. Then we can call back. It is one of the frustrating parts of our work.

Student: *I called the Hotline last*

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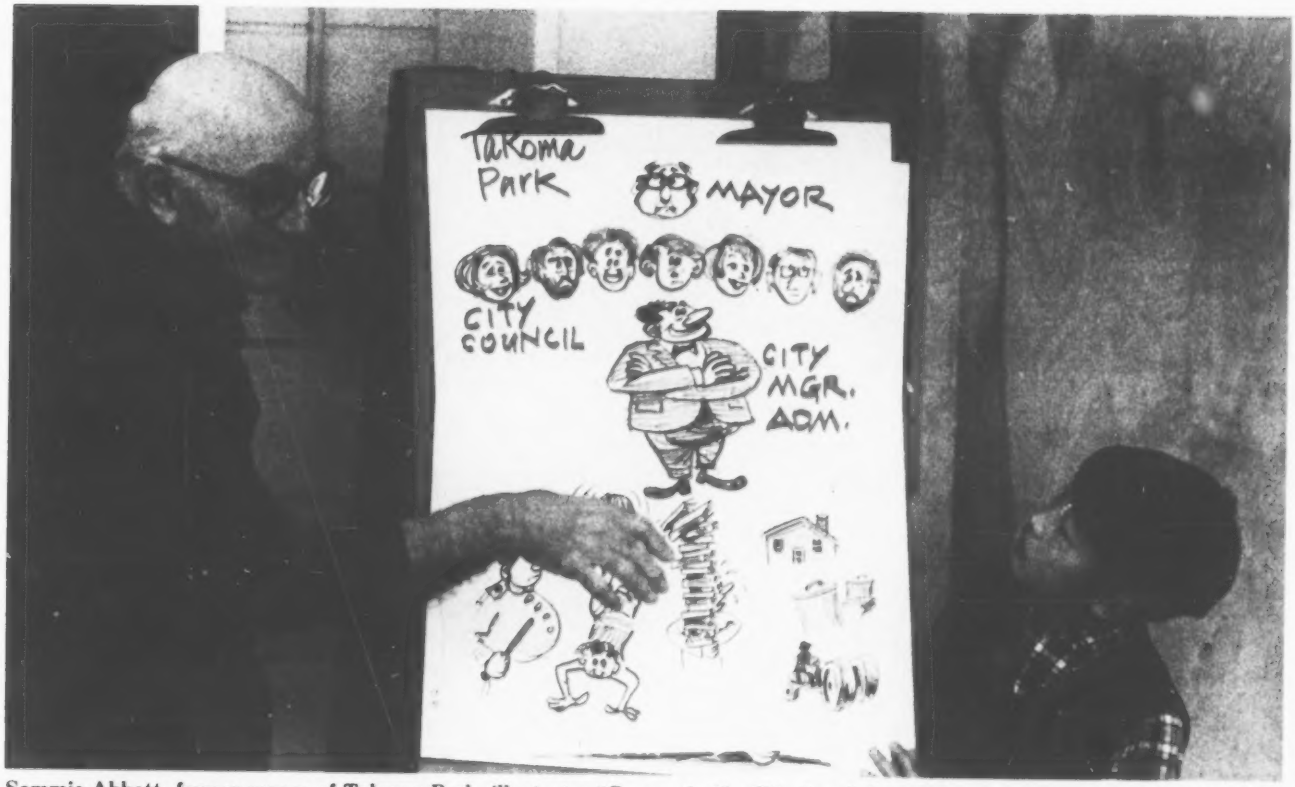

Sammie Abbott, former mayor of Takoma Park, illustrates "Careers in the City," and discusses current events and politics with Sherry McGinn's fourth grade class at Piney Branch ES.

BEST COPY AVAILABLE

Montgomery County Hotline

(continued from page 5)

March, and the speaker was noncommittal and asked me, "Do you feel you should do this or this?" Why was he so noncommittal?

Collins: We don't know all about your situation. We try to help you explore different options and decide what you would be comfortable doing. Then you own the problem and the solution.

Student: *How long do calls last?*

Collins: The average length is 24 minutes. A call can be 10 seconds or up to three hours.

Student: *How do mentally ill callers ask for help? Do they know they are ill?*

Collins: We refer them for help. Many have already received mental health services and may not be under care at the moment. We have four hour shifts. Some ill people call once a day or even once a shift (six times a day). They need a friend "to be there and listen to them." Many of their friends are tired of responding.

Bosnic: *What about confidentiality if teens call?*

Collins: Regardless of age, we never call anyone else. We never reveal callers' identities.

Student: *Even if the call is a Level 3 suicide call?*

Collins: When callers give us a name, we cannot verify if they are who they say they are. If they identify themselves, we ask them to get help from a family member, or we offer to speak to a family member for them.

Student: *Do you have contact with the runaway hotline?*

Collins: We can connect with 800 to 1,000 different referral agencies. Twenty percent of our total calls we can refer to agencies that offer specific help.

Student: *Wouldn't it be depressing to work for Hotline?*

Collins: No. We need to be able to empathize but not become too emotionally involved, or we lose our objectivity. This work gives volunteers a perspective on their own problems. They are a very special group of people, very supportive of each other. They develop a real comraderie.

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Wootton HS physics teacher Wilson Bascom is the first recipient of the Montgomery Education Connection's "Teacher of the Month" award.

Bascom wins first award

Wilson Bascom, physics teacher at Wootton HS, has been selected as "Teacher of the Month" for his outstanding use of community and business resources. Bascom has invited college professors, business professionals, friends and former students to visit his classes to share their technical expertise.

For the past two years he has initiated, planned, organized and run a countywide physics meet for junior and senior high school students. Technical advisors made presentations at the event and served as supervisory judges who were available to answer questions and settle disputes. This year, about 300 students from both public and private schools participated.

Bascom also has been involved in the Summer Science Program offered by Montgomery County. He planned a kind of traveling science classroom for 20 to 30 students who elect to participate in this non-credit summer science exploration. The all-day program lasts 3 to 4 weeks. Bascom has taken students to the nuclear reactor at the University of Maryland, on a tour of Goddard Space Flight Center in Greenbelt, and to the multitude of laboratories at the National Bureau of Standards. The Chesapeake Bay Foundation is another resource Bascom has tapped. He has taken students overnight to the Smith Island Center for Marine Biology and Oceanography Studies.

Bascom serves on the task force for up-county special programs in science, math and computer science, and plans to spend his day of administrative leave visiting a resource that will better qualify him to talk with other committee members about using the many science resources in the up-county area.

According to his nominator, "Bascom's efforts to use community resources for the good of his students, and all Montgomery County students, deserve special recognition. His initiative, resourcefulness, and follow-through in this area are exemplary." ▪▪

Montgomery County Hotline

(continued from page 7)

Bosnic: *Are there ways for you to evaluate if volunteers are effective?*

Collins: We have a command structure of senior volunteers who monitor how people are doing and watch for burnout. We have at least 100 volunteers and I cannot monitor them all. We have refresher training to keep volunteers up to date on AIDS, drug issues, cancer deaths, etc. We are constantly recruiting volunteers.

Bosnic: *If someone called to ask how to prevent AIDS, what would you say?*

Collins: There are many ways to contract AIDS, blood transfusion, sexual relations, etc. We try to refer callers to experts in AIDS and usually recommend they call the Whitman Walker Clinic.

Bosnic: *If a new volunteer has a serious call, do you switch to a veteran?*

Collins: No. If a serious call comes in, the volunteer waves a hand and a senior person will notice and respond by writing coaching notes reminding him or her what to find out, to call poison control, etc. The senior is supportive without getting in the way or being distracting, bringing coffee, sodas. If volunteers feel they can't handle a call, they may ask to "hand it off" to other volunteers.

Student: *Is there a specific time you get most calls?*

Collins: Between 6:30 p.m. and 2 a.m.

Student: *Are there chronic callers? Both my parents volunteer at Hotline and have told me about chronic callers.*

Collins: Yes, sometimes you can follow a case and over the years can see real progress.

Student: *Has any sibling or friend called to say you didn't help my friend and she killed herself?*

Collins: No. However someone did call once to ask if her friend, who had committed suicide, had confided to us where she kept the poetry she had written.

Student: *Do you get more calls on the weekend?*

Collins: We are busy all the time.

The Montgomery County Hotline number is 949-6603. The number to call to arrange for a speaker from Hotline to visit your class is 279-3125, the Connection Resource Bank. ∷

HOT SPOT

Third Grade Teachers!

When you prepare lessons for the instructional objectives on soil, the Connection Resource Bank can offer the following resources:

Dr. John Meisinger
Specialty: soil and environment, chemistry research, soil scientist

Mr. John Kittridge
Specialty: soil conservation, soil engineers and geologists, uses of soil in construction

Dr. Richard Weismiller
Specialty: soil research

Mr. Marshall Ray
Specialty: soil conservation in Montgomery County

Connection Resource Bank
We've got what's hot!

Call Judy Messittee, 279-3125.

Len Conner, systems analyst with Vitro Corp., has devoted hundreds of hours to developing and implementing the computer program used by the Connection Resource Bank.

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Connection Resource Bank

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Connection Resource Bank

...Of Interest

Steve Dubin, former bank vice president, explains recent changes and expanding job opportunities in the banking world to juniors and seniors at Rockville HS.

Class checks out bank careers

Steve Dubin, certified public accountant, lawyer, former bank vice president and consultant in venture capital, met with 28 students in Tim Dunn's money and banking class at Rockville HS to guide them through the maze of job opportunities in today's investment world.

Dubin began with a brief history of banking. He explained that "banks collect money from savers and funnel it to spenders. A bank is a financial intermediary that stands between savers and spenders." Focusing students' attention by using clever graphics, he explained the differences between banks, credit unions and savings and loan associations, referring to them as the more traditional types of financial institutions.

History of banking

He explained that over the last several years the field of finance has changed considerably, citing the growth of auto loan companies, department store financing and insurance companies that make loans. He admitted that there is great confusion in the financial world with many companies "trying to seek an identity in the market place, searching for a special niche of service."

Dubin told students that a bank can be a holding company, owning several different kinds of companies, such as other banks, general insurance companies, life insurance companies, venture capital companies, leasing companies, mortgage companies, investment advisory companies and credit card companies.

Careers in banking

Moving from the general to the specific, Dubin focused the remainder of his presentation on the careers available in banking. Beginning by sharing his own educational and work experience, he encouraged students to consider the many opportunities banking offers to both high school and college graduates.

Using graphics once again, Dubin spent about a minute on each of ten careers. **Tellers**, he explained, are the profession most associated with banks. Though their salaries are at the lower end of the banking scale, tellers have one of the most important jobs in a bank. They are responsible for customer relations and are the front line where the bank interfaces with the public. "If customers get a poor teller, they will think the bank is a poor one. It's a pretty tough position." Tellers need no special educational training. They do need experience handling money.

For those students who may be thinking about college but may not have the money, Dubin said that banks are very interested in training people. The American Institute of Banking offers in-service courses for bank employees. Some banks have a tuition assistance program. They may pay all or part of college tuition.

Dubin described **loan officers** as people who have limited authority to decide whether or not the bank should loan customers money for a car or a mortgage.

Every branch bank has a **manager.** The manager can approve small loans on the spot, but must refer larger requests to a committee of the bank with higher authority. The branch man-

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Dubin defines jobs

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ager is the public relations arm of the bank. He or she is required to make "cold calls" on business people of the community to introduce the bank and its services. The branch manager's job is to tell the community, "We're a great bank. Bank with us."

Economists working for a bank forecast what the interest rates are going to do. They use computer models to do this.

Accountants must prepare financial reports for stockholders as well as many internal reports. Banks are highly regulated, so accountants interface between the regulators and the banks.

Insurance agents working for a bank occupy a sophisticated sales position as banks increase the services they offer.

Many banks have a large staff of employees. For banks with thousands of employees, **personnel experts** are a necessity. They function as interviewers and benefits experts.

Banks become involved in many legal procedures. **Attorneys** are vital on every bank's staff. Among their responsibilities are handling regulatory agencies and coordinating litigation as well as writing legal documents.

Seventy percent of the money banks receive is loaned out again. The remaining 30 percent is invested. Every bank has **investment analysts** to guide them in the best use of their money.

The **clerical staff** of a bank includes the largest variety of positions. Vital to its functioning are the bank's **administrative assistants, key punch operators, secretaries** and **computer operators.**

Several students in the class expressed an interest in becoming certified public accountants and questioned Dubin about his background in this field. He explained that all accountants need not be certified.

Concluding his remarks, Dubin reminded students who might be job hunting in the area of banking that it is customary to dress in business clothing, and that it is important to take school seriously and try to maintain a respectable grade point average. "You have the opportunity to get ahead in a bank. If you work 50 percent harder than anyone else, you can really advance." ■■

Paint Branch HS career coordinator Nancy Peckerar is winner of the Montgomery Education Connection's "Teacher of the Month" award.

Peckerar tops in resource use

Nancy Peckerar, career coordinator at Paint Branch HS and Montgomery Education Connection's "Teacher of the Month," was shocked when she calculated that she had placed more than 440 students in internships during the last 10 years. Peckerar began the school-based internship program in 1977 with a class of 18 students. This year she has placed 58 interns.

The awards committee, composed of business leaders from the Montgomery Education Connection's board of directors, selected Peckerar for her creative use of community resources. According to the awards committee, although part of her job involves use of such resources, Peckerar has "extended herself far beyond the formal job description. She has volunteered her time to develop materials about the Connection Resource Bank for use in communicating with teachers. In quality and quantity, her internship program has been outstanding."

Among Peckerar's favorite placements are a seal training internship at the National Zoo and catering internships in which the final project is always a luncheon for all the Paint Branch interns with chocolate mousse as a standard part of the menu. She has discovered internships in such varied fields as law, engineering, marketing, hotel/motel management, robotics, hospitals, TV, radio, agriculture (swine reproduction), travel, commercial art and social work.

For several years Peckerar arranged for shadowing programs (where students accompany a mentor and observe a day of work) for the entire 10th and 11th grades at Paint Branch. Because all students do not drive, the logistics became unmanageable. Now the program is limited to students in the career awareness class and other Paint Branch students who are interested. She confesses that her most difficult moment was accompanying a student to observe open heart surgery. The student was fine. Peckerar was not.

As part of her career awareness class Peckerar arranges for mock job interviews and invites personnel specialists from such businesses as Sears & Roebuck, Quality Inns, Woodward & Lothrop, Chuck E Cheese and Vitro to come to class and conduct formal interviews. Several of these interviews have resulted in job offers for her students.

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To smoke or not to smoke is the question

More than 100 4th, 5th and 6th graders sit cross-legged on the floor of the multi-purpose room at Kensington Parkwood ES, intent on a 15-minute movie that is as shocking as it is important. They are viewing the American Lung Association's film "Fatal Mistake," a clear plea to children not to smoke.

The film offers medical evidence of the effects of smoking. A smoker's lung power is tested. The effect of one cigarette on the blood vessels in the hands (constricting them and causing the heart to work harder) is demonstrated. The heartbeat and "breathing" of a fetus is monitored before and after the mother smokes a cigarette. Blood pressure changes are observed as a cigarette is smoked. As the smokers learn what is happening to their bodies, their reactions are recorded.

The film's most powerful moments are reserved for the advice of a 43-year-old woman who is dying of lung cancer. Frail and emaciated, she explains that she thought she was risking five years at the end of her life by smoking. She never imagined her life would be cut short so early. In the film, junior high and high school students are shown watching this woman's testimony and then deciding to give up smoking.

Dorothea Nullmeyer is the speaker who accompanies the film. Nullmeyer has been lecturing against smoking for many years. She lost her husband to cancer.

After the film, she begins what for her has become a crusade. Nullmeyer explains that "side stream smoke," the smoke that comes from the end of a burning cigarette, is much more dangerous than the smoke that is inhaled. Smoke is inhaled for only 24 seconds. Side stream smoke is in the air for 12 minutes as a cigarette is smoked. She advises the children to "move away" from people who are smoking.

Dealing with the issue of parent smokers, she suggests that children explain the dangers of side stream smoke to their parents and ask them to try to stop smoking. Nullmeyer emphasizes that whether or not to smoke is a choice each of us makes.

Dorothea Nullmeyer (above and right) speaks for the American Lung Association to students at Kensington Parkwood ES about how smoking affects the body.

She asks for questions from her audience. Hands are raised all over the room. "Why do they even make cigarettes?" (For many years we were unaware that they were dangerous.) "What can the Lung Association do to help people who are addicted to it?" (They hold free classes to help smokers stop.) "Is smoking as bad or worse than drugs?" (Both are bad. Don't touch either.) "Is a pipe as bad as breathing in a cigarette?" (Equally as bad and so is chewing tobacco.) "What if you do sports?" (If you smoke and are in an athletic activity, you won't have the lung power to win.) "Can you tell us some of the diseases from smoking?" (Emphysema, cancer of the lungs, mouth, throat, high blood pressure and heart disease.)

Both speaker and film carry the American Lung Association's message to the target audience. "You are risking your lives if you smoke." To book this resource, call Judy Messitte, resource bank coordinator, at 279-3125.

HOT SPOT

Chemistry Teachers!

When you teach the instructional objectives on the nature of radioactivity, the stable radioactive particles and the application of atomic energy to science and society, the Connection Resource Bank can offer the following resources:

Dr. Hall L. Crannell, university chairman of physics department
Specialty: nuclear power, environmental issues, astrophysics.

Dr. Marvin Roush, associate professor
Specialty: nuclear & chemical engineering, topic: "Risks of Nuclear Power Plant, Effects of Nuclear Radiation."

Joe Reader
Specialty: atomic spectra.

Harvey Eisen
Specialty: electronics, radiation.

Joe Coyne
Specialty: nuclear radiation.

Dr. Tawfik Raby
Specialty: production of radio isotopes in medical research, research applications of radiation, can arrange for group of teachers to tour a small research reactor in the area.

Dr. Frank J. Munno, program director of nuclear engineering at local university
Specialty: nuclear waste management.

David Roth
Specialty: prepares and conducts training programs for specific utility needs, operates power plant training, also has large collections of slides, transparencies, pamphlets, papers and charts available.

Dr. David Ebert, training-reactor director at local university
Specialty: can arrange for students to tour reactor with university student guides.

Dr. Mohammed Modarres, university professor
Specialty: assessing reactor safety and reliability.

Connection Resource Bank
We've got what's hot!

Call Judy Messittee, 279-3125

Peckerar's students enjoy career search.

Peckerar wins

(continued from page 2)

Every two or three years Peckerar organizes a Seminar Day at Paint Branch for the entire student body. Over a period of several days, students may schedule themselves for different periods throughout the day (including lunch break) to hear speakers in disciplines such as math and science, art, music and dance, customer services and legal services, skilled crafts and foreign languages. Speakers have included machinists, electricians, plumbers, auto mechanics, construction workers, lithographers, carpenters, church musicians, music educators and therapists, composers, dance choreographers, FBI agents, police officers, lawyers, paralegals, airline representatives and hair designers.

Peckerar has taught seminars for MCPS on organizing an internship program and has helped develop the career awareness curriculum. When the Connection Resource Bank became operational, Peckerar shared all of her resources in science and mathematics with Judy Messitte, bank coordinator, providing about one-third of the original database.

Recalling the years of inviting the community into the classroom, Peckerar said, "I've been doing this for so long that many of my interns are in business for themselves or in a position to hire or employ other interns. Now my interns are taking interns. Sometimes they will call me, or often I will call them. The fun part is finding a new internship placement." ■

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

Connection Resource Bank
...Of Interest

Dr. David Ederer, spectroscopist with the National Bureau of Standards, demonstrates the characteristics of energy waves to 4th graders at Beverly Farms ES using a long rope and several students, as well as an overhead projector, slide projector, wave generator and laser.

'Laser man' de-lights students

Mr. Wizard lives! Dr. David Ederer, a scientist with the National Bureau of Standards, brought his "goodie bag" into Donna Yablonski's fourth grade science classes at Beverly Farms ES and proceeded to dazzle his young audience with spectrums, lasers and waves.

Hauling out a wave generator (makes waves visible on a vibrating string), a piece of rope, a laser (specially built with the top off so that the light tube can be seen), a diffraction grating, prism, lens, mirror, hanging crystal (borrowed from his daughter) and a slide with slits in it, Ederer introduced students to new concepts in waves and wave measurements.

Snapping his suspenders and encouraging "lots of questions," the NBS spectroscopist (someone who uses light to study the properties of materials) launched into a demonstration and discussion of waves. Beginning with the question, "What kinds of waves do you know about?" Ederer pumped and praised his audience as they responded, "sound waves, light waves, radio waves, microwaves, ocean waves, X-

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Lasers and light

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rays, laser rays." "Wonderful! Great! Look how smart you are!"

Ederer explained further that, "I am going to use big words, but I will tell you what they mean." Defining waves as "a disturbance which means a way to transmit energy," Ederer asked if his audience knew that an earthquake is a form of sound wave. "The pieces of earth shake and make waves. Anytime you shake something, you get a wave." As hands were raised, Ederer observed, "You're full of questions. That's wonderful!"

The scientific terminology came as promised, "velocity of propagation, wavelength and frequency," accompanied by Greek symbols for these concepts. Each term was carefully and clearly explained using illustrations on overhead and slide projectors.

To demonstrate the motion of waves, Ederer had two students hold the ends of a long rope marked by a piece of black tape while a third student plucked the rope. The ensuing vibration demonstrated how waves bounced across the length of the rope, but the black tape merely moved up and down. The more tautly the rope was held, the faster the wave moved. Ederer asked, "Where do people use strings to make sounds?" Students responded with every kind of stringed musical instrument they could think of.

Wavelength was made visual using a battery-operated door bell that was rigged to vibrate a string. "The only thing that makes all the waves different is their frequency and wavelength."

Slides illustrating the sun's light helped students understand why the atmosphere blocks too many X-rays from coming through and killing people. One student questioned this concept. "I've had X-rays and I'm not dead." Ederer explained the difference in amount of exposure between the sun and a doctor's X-ray machine.

The properties of light, reflection, refraction, diffraction and interference were demonstrated as Ederer pulled one prop after another out of his "goodie bag."

Defining refraction as the bending of light by a piece of glass, Ederer explained that a rainbow is caused by light being bent by rain drops. "Three hundred years ago, Newton told us how light got bent around in raindrops and showed us the same thing happens when light goes through a prism." The prism and slide projector painted a beautiful spectrum on the classroom walls. A diffraction grating and crystal demonstrated other properties of light.

Ederer began his demonstration of the laser by defining "coherent" and "incoherent" light in words familiar and understandable to fourth graders. White light is incoherent light. Lasers generate coherent light, and the helium neon laser he brought is an example of light where "only one frequency gets out—red. It is totally parallel, absolutely coherent light." Ooohs and aaahs could be heard as Ederer focused the laser on the ceiling and walls of the classroom. He explained the difference between the red laser a surgeon uses to mark where an incision is to be made, and the infrared laser used to actually cut. Lasers are used to cut cloth, steel and for welding because their intensity can be focused so precisely. A student asked why they don't use lasers in war. Ederer explained that lasers are used now, but "mostly for tracking. You can track a tank with one."

Ederer ended his light show by sharing his enthusiasm with his audience. "The wonderful thing about waves is that they are not complicated. They all have the same properties and obey the same formulae. The same rules hold true no matter what kind of wave." Having said this, the scientist whom students had been calling "laser man," packed up his goodie bag and waved goodbye. ■■

"Teacher of the Month" Please Note Change of Date for Award Nominations

Nominations for the May Montgomery Education Connection's "Teacher of the Month" award must be submitted by April 9. Previous applicants need not reapply but will be considered automatically.

Holding a specially designed helium neon laser whose cover has been removed to expose the light tube, Ederer explains and demonstrates coherent light as students watch the bright red beam move across the ceiling.

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Science writer explains publishing process

What do feet, insects, shadows, drivers' seats and Pompeii have in common? They are the subjects of photographic picture books for children by Nancy Goor, a local author who shared the creative process of book writing and scientific observation with sixth grade gifted and talented students in Cheryl Field's art class at Poolesville ES.

At a "book and author tea," Goor, who charges a fee for her lectures, exchanged experiences with the budding writers and illustrators who had just completed a nine-week seminar during which they each had created a book.

Goor writes the text to accompany the photographs taken by her husband Ron, and explains how a book develops from an idea, into a manuscript, through numerous revisions and emerges in final form.

She discussed publishing from both the writer's and publisher's point of view. The publisher wants a book to sell and must limit cost to maximize profit. The writer conceives and creates a manuscript and must work within the constraints imposed by the publisher. When differences of opinion arise they must be negotiated.

The Goors had to convince their publishers that *Backyard Insects* needed color photographs to be effective. Goor further explained that every quarter inch of added page size increases production cost considerably. In their book *Pompeii* the Goors felt it was important that photographs be large enough to be able to see details. That meant limiting text size. One third of the original manuscript was cut in order to assure the needed relationship of photographs to text.

Students examined manuscripts littered with editors' revisions, galley proofs, and "blue" sheets of cropped photographs that are illustrations of the lengthy process of the birth of a book. Pages of layout with photographs, art work and text also were shared. Pages must relate to each other and layout is critical.

Using slides, Goor selected favorite pages from her books and projected them so that they were large enough for everyone to see. She proceeded to relate the history of each page, explaining how she rode in a tank so that she could describe what it "feels" like as well as what it "looks" like. In planning the page with a photograph of a crane operator's seat, Goor had to phone all over the country until she could find out the length of the crane's boom. The information was finally located in Wisconsin. She asked the pilot of a Concorde jet to read her description of piloting the aircraft. Authenticity is vital.

"I tell kids what a teacher wants them to know; to write and rewrite; to write clearly and with rhythm. I explain that I always read aloud what I have written. It's important to hear it."

Goor discusses the benefits of using a word processor, explaining that producing a very thin book entails enough revisions to create a very tall pile of paper. Computers simplify the rewriting process.

For Goor, the best parts of writing are the experiences that come with the job. "I like riding in a tank, walking in the ruins of Pompeii, photographing

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Nancy Goor lectures on writing.

Using slides to discuss the illustrations in her book *Backyard Insects*, Goor explains how insects can protect themselves by their coloration.

Edited galleys are familiar to every writer.

Businesses support Bank

For six months *Of Interest* has contained stories about business and community people who are going into MCPS classrooms to help teachers enlarge their students' worlds. For many years teachers have invited speakers and planned other community involvement, but it only has been during the past two years that more than a thousand of these excellent resources have been cataloged and made so easily accessible.

This database of resources did not happen by accident. It was developed through a partnership between MCPS and the Montgomery Education Connection, a foundation established three years ago by a group of Montgomery County business people with the express purpose of developing programs and activities that will help the school system as well as business.

The Connection Resource Bank was the organization's first project. Its development required hundreds of hours of time by systems analysts at Vitro Corporation and Automated Sciences Group, Inc., as well as the support and involvement of many other members of the Connection.

The foundation provided the computer that houses the database at the CESC and paid for the computer training of Judy Messitte, the Bank coordinator. MCPS has provided a staff person to serve as executive vice president of the Montgomery Education Connection (Sally Keeler), as well as the Bank coordinator, and has allocated office space so that Sally Jackson, coordinator of volunteer services, can oversee the Bank's operation, thus demonstrating the school system's keen interest and commitment.

Where equipment is available, the Bank can be installed on an IBM compatible microcomputer in schools, but the Bank's resources are available to any teacher by calling Judy Messitte at 279-3125.

The Connection will continue to support the Resource Bank, and is now expanding into other projects to help MCPS. It is developing a summer job bank that is primarily for new teachers and those who have been in the system for one or two years. Another project is the Teacher of the Month award, which recognizes teachers who have made outstanding or innovative use of community resources to enhance the curriculum. A third project is the Business Institute for Educators, a program that will offer teachers, counselors and administrators throughout the Washington metropolitan area a two-week summer training experience. Two new projects are just getting started: a project to help encourage the development of students' job readiness skills in conjunction with two high schools, and a pilot project to develop seminars to help staff members keep up with the latest in technology.

The Connection is governed by a 16-member board of directors and its members cover a wide range of businesses and government agencies.

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The executive board of the Montgomery Education Connection met for a demonstration of the Resource Bank at Paint Branch HS. Attending the meeting were: (from left) Mary Pat Lease, Merle Garvis, Steven Dickoff, Jack Harris, Clifford Kendall, Julianne Chappell, Helga Tarver, Fredric Bell, Sally Jackson, Judy Messitte, Alan Ledbetter, Tony Marva, Sally Keeler.

Debbie Tharps, NOAA/NESDIS physical scientist, explains to fifth and sixth grade students at Ritchie Park ES how computers are used in all areas of weather study.

Scientist explains computer use at NOAA

Debbie Tharps, a physical scientist, was bombarded with questions about computers and the ozone layer when she spoke to 150 fifth and sixth graders at Ritchie Park ES.

Tharps, from the National Oceanographic and Atmospheric Administration (NOAA) National Environmental Satellite Data Information Services (NESDIS), describes her title as "a short term for analyst, programmer, operator, biologist, anything related to the physical sciences." The program was requested by Diane Davies, sixth grade teacher, and booked through the Resource Bank to explain how Tharps uses computers in her work, what she does at NOAA, and what jobs are available in her field, which is ozone monitoring.

Explaining that there are five ways in which computers are used in her office, Tharps spoke briefly about each use. Since the NOAA/NESDIS building is secured, identification cards that are read by computer are used for entry. Tharps told students all the information stored on her card, her name, address, even her Social Security number, must be read to allow her into her office building.

Computers allow information gathered from satellite photographs to be transferred into a database and stored for later use. This process permits scientists to track weather as clouds proceed across the earth by reading photographs generated by the computer from information stored in the database.

TSO, or "time sharing option" is a method of computer use that allows many people to utilize the memory of a mainframe computer at the same time. Using small microcomputers, as many as 36 people may be "on line" simultaneously. The service is so rapid (a matter of seconds) that few users realize that they are waiting in line to use the computer.

Monitoring the ozone layer is another job in which computers are used at NOAA. Measurements of the ozone layer are taken and the information is stored in the computer as numeric data. This storage of information allows scientists to compare and be aware of changing conditions.

Word processing is the final computer function Tharps discussed. She pointed out the value of being able to make errors and correct them easily, "especially if you are a two-fingered typist."

Tharps briefly touched upon the four different types of computers used by her office: super computers (which would fill a large room), mainframe computers (about the size of four freezers), minicomputers (as large as 4 small freezer chests), and microcomputers (the size of a small TV set). Application, amount of memory, physical size and available money determine which computer is best suited to accomplish a task. Asked by a student why NOAA would need access to all four kinds, Tharps explained that she deals with "lots and lots of variable information."

Students were anxious to question Tharps about the ozone layer and were very knowledgeable and concerned about its deterioration. Tharps explained that her job is to monitor the ozone layer and to recommend ways to stop it from disappearing. She monitors the satellite that collects ozone data to make sure it is watching the earth correctly.

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April "Teacher of the Month," Rita Segerman, shares her enthusiasm with her students.

Segerman receives award

Rita Segerman, gifted and talented teacher at Weller Road ES, is a one-woman outreach program all by herself.

She is the Montgomery Education Connection's "Teacher of the Month," because "as an elementary school teacher, her level of interaction with the business community at those grade levels is unusual and commendable. The committee is aware that elementary schools do have career awareness activities, but Segerman's program utilizes community resources in depth and over an extended period of time so the children have multiple exposures to the world of business."

Segerman is not one to let an opportunity pass her by. Each year she selects a theme for her students to explore. This year it is "Come to your Senses" (learning about the five senses). She has tried to show her students the connection between the human body and the human spirit.

She explained that "I read a newspaper article about Mr. Ken Hakuta, the entrepreneur who made millions of dollars marketing a plastic spider, the 'Wacky Wall Walker.' His appearance in my class and his advice to students confirmed the wisdom of having faith in yourself when you feel you have a good idea. He spoke of the need for motivation, determination and hard work to develop your marketing strategy. How important for young students to see the traditional work ethic still prevails."

Segerman's extensive use of the Connection Resource Bank has resulted in a parade of professionals who have visited Weller Road to share their expertise with her 80 students in the Area 1 TOK Program (Thinking Opportunities for Kids). An ophthalmologist, engineers from Vitro and the National Bureau of Standards and a physicist from the University of Maryland are only a few of the many "connections" Segerman has made for her students that have enabled them to explore lasers, sounds, vision and a multitude of sense stimulating phenomena.

After the visit of an extraordinary young legal researcher who was blinded at the age of six and has become a completely independent adult who travels on Metro, takes college courses, and even brought her knitting to Segerman's class, a student wrote, "You taught us that you have to have courage because you have to keep your self-confidence."

"Through networking, I heard about a woman who trains hearing-ear dogs. She was able to bring her puppies to class for a demonstration. She also became a mentor for a child researching the topic 'Animals Who Help Humans.'"

The Resource Bank arranged for Segerman to take her students to Gallaudet University "to see firsthand how hearing-impaired students cope with their disability."

Last year, for her unit on all aspects of flight, Segerman invited David Zahrens, a finalist in the Teacher in Space project to visit. Mr. Zahrens gave students "an opportunity to consider all of the implications of manned space voyages." A field trip to the Montgomery County Airpark provided students with "a firsthand look at that important facility and the opportunity to enter the cockpit of an airplane and sit in the pilot's and copilot's seats."

According to Frank Wal, principal at Weller Road, "Hardly a week passes without an important visitor arriving at Mrs. Segerman's room. They come with their impressive expertise, ready to share it with eager young minds and smiling faces." ⁘

Segerman's theme for the year, "Come to Your Senses," encourages students to explore how learning occurs through taste, smell, touch, sight and hearing. Below, she videotapes Cindy Read, a student from Gallaudet University who is demonstrating American Sign Language.

Montgomery Education Connection, Inc.

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- **Get speakers for your classes**
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- **Locate tutors**
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More than 1,000 volunteer experts are in the data base.

To reserve a resource call, Judy Messitte at 279-3125.

Tharps and Davies field questions about the deterioration of the ozone layer.

NOAA computers

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"Since we cannot physically turn the satellite, we do it with a computer."

Student questions flew thick and fast. "What will happen if the ozone layer disappears?" (You will burn like toast.) "How fast is it disappearing?" (At this time not very fast. We need to stop the pollution.) "Is there an ozone layer in Antarctica?" (We have a hole there.) "Can you build up the ozone layer?" (You can't build it back up. You can only slow its disappearance. Every now and then Mother Nature steps in and slows down the disappearance with rain.) "If you were underground would it help?" (Somewhat but not much.) "What does pollution do to the ozone layer?" (Air pollution punches holes in the layer little by little and like holes in your jacket, if you don't fix them, they grow bigger and bigger.) "How did the hole get in at the Antarctic since there is no pollution there?" (The wind blows pollution.) "Would you be protected if a city were built under the ocean?" (The ocean would get hot, boil and evaporate into the air and you would be exposed.) "How long would it take you to burn if the ozone layer disappeared?" (Seconds.)

Tharps tempered this information by assuring students that her generation had discovered the problem, was working on a solution and would continue to do so However, she advised, "You are the .uture. You must monitor it after I am not here." ::

Goor helps writers

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an armadillo in the basement of the lion house of the zoo, sitting in the pilot's seat of a Concorde. You learn a tremendous amount. I really enjoy clarifying. I like to explain things, to simplify, to make ideas reader friendly."

The most difficult part of authorship is "having to cut out things that I love. When one third of the original text had to be cut from *Pompeii*, I found that very painful. Cutting improves the text however, and editors are usually right."

Asked how long it takes to have a book published, Goor explains that it depends upon the subject of the book. *In the Driver's Seat*, a photo-essay about what it is like to drive an army tank, an electric engine, an 18-wheel truck, a combine, the Concorde jet, a front-end loader and a race car, took about a year to produce. "We had the idea; the editor liked it; we did the research." *Pompeii, Exploring a Roman Ghost Town*, took eight years of intermittent work and necessitated four trips to the ruins of that ancient city.

The Goors refer to their publications as "awareness books" whose purpose is to open children's eyes to the beauty and wonder of the world. As founders of the Smithsonian Insect Zoo, Ron, a biochemist, and Nancy, a former art teacher at Bethesda-Chevy Chase HS, have expanded an interest in bees, moths and beetles into an exploration of the common and fascinating objects of this world. They have shared their interests with children through their books and lectures. ::

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection
Resource Bank
...Of Interest

Wilmer S. Cody, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
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384-2300

...Of Interest

Students examine the lower jawbone of a porpoise at the Gem and Mineral Show.

Classes inspect stones, bones

Ninety fifth grade students from Stedwick ES spilled into the exhibit showroom of the 23rd Annual Gem and Mineral Show and were quickly drawn to the exhibits with things they could touch and buttons they could push. They were joined by ten students from Mark Twain School and wandered among the 41 separate exhibits, stopping to examine dinosaur tracks preserved in rock, fossils, crystals, coral, minerals and polished stones.

Presented by the Gem, Lapidary and Mineral Society of Montgomery County, the exhibit is held annually at the Montgomery County Fair Grounds in Gaithersburg and is made available to students, handicapped citizens and the elderly free of charge on the day before the show is officially opened to the public.

The glass showcases included shellcraft exhibits of flowers constructed completely of shells, elephants carved in different kinds of stone, as well as displays of geodes, crystals and minerals from all over the world.

Dian Beckman, one of the presenters, explained that the mineral and fossil displays represented different methods of collecting. The majority of the cases in the show contained minerals and fossils that had been purchased or traded. However, many mineral enthusiasts "self-collect." According to Beckman, people can still go out and collect things that are beautiful and very old within a 25-mile radius of the metropolitan area. The club sponsors collecting trips once or twice a month (weather permitting) to nearby quarries, beaches and pits (always with permission of the property owners). Sharks' teeth still can be found along Calvert Cliffs, and remains of huge fossil clams have been found near Rosecroft Raceway. Self-collected displays were labeled as such.

Students crowded around the "Mineral Identification Game," which challenged them to match the mineral specimen with its correct name and make a light bulb flash. Another popular exhibit was one at which students could control the movement of a magnifying glass as it passed across many different kinds of minerals contained in a glass case.

An exhibit table of rocks included labels that were in Braille as well as written form. Among the specimens available for touching were a 500-million-year-old stone with worm tracks imprinted in it, a large piece of petrified wood, a magnetite lodestone from Arizona with paper clips magnetically held to it and minerals of varying degrees of hardness, including talc. Talc, the exhibitor explained, is considered one of the softest minerals according to Mohs Scale of Hardness, which identifies minerals on a scale from #1 to #10 depending upon how easily they can be scratched. Talc is a #1 and can be easily scratched with a fingernail (evident by the halo of white powder that surrounded it on the table). A diamond is rated #10 and cannot be scratched by any other mineral.

(continued on page 4)

Louis Williams shares polishing expertise.

Herb Reinhold demonstrates a device for administering cardiopulmonary resuscitation to students in Takoma Park's seventh grade magnet science classes.

Medical tools demonstrated

In a dramatic simulated demonstration of state-of-the-art emergency medicine, Herb Reinhold, a vice-president of Survival Technology, Inc., injected an antidote for nerve gas exposure into his pant leg, using his company's spring-loaded automatic injector, as students in Meryl Moran's two seventh grade magnet science classes at Takoma Park IS gasped at the speed with which the needle punctured the material.

To whet the appetite of possible future research scientists, Reinhold explained that his company provided medical kits for the Mercury Space Program. "When the astronauts were walking on the moon, they had some abnormal electrical heart activity, so we had to devise an injector that would work in a vacuum." His company is currently working on an automatic injector for a new drug being genetically engineered that acts like "Pac Man," traveling directly to a clot causing a heart attack and dissolving it.

Reinhold, whose background is in the field of medical electronics, holds a number of patents and is responsible for the marketing, manufacturing and design of emergency medical equipment primarily used to reduce prehospital death.

Moran's classes are studying current technological research in the field of medicine and have listened to experts discuss lasers, genetic engineering, artificial intelligence and microbiology as part of a guest lecture series.

Opening his address with a sequence of slides showing the various products his company produces, Reinhold proceeded to explain the reason why such equipment is necessary. The automatic injectors resemble pens that can be carried in a shirt pocket.

The "EpiPen," an injector that comes in child and adult size, is used to counteract an allergic reaction to bee stings and is designed to be self-administered in an emergency.

The "LidoPen," is an injector for patients who are at risk of having a heart attack. The drug injected by the LidoPen reduces the electrical instability in the heart as a heart attack begins to occur. Reinhold, whose area of expertise is the heart, used colored diagrams, a cardiobeeper and an electrocardiogram machine (decodalyzer) to illustrate his explanation of what happens when a heart attack occurs.

Explaining the mechanism of a heart attack, Reinhold asked for a student volunteer. Using a device called a cardiobeeper, developed by Survival Technology, he placed two electrodes in the student's armpits. This device allows the heart's electrical signal to be measured and changes the signal to a sound tone that can be transmitted over any standard telephone line to a medical facility. By asking his volunteer to exercise mildly, Reinhold was able to demonstrate the change in the tone and heart rate to listening students.

Persons at risk who suspect they may be having a heart attack can use the cardiobeeper to send the tone to the company's Cardiac Monitoring Center, tended 24 hours a day, 7 days a week by health professionals. The tone is picked up and reconverted to an electrical signal that is printed out on an electrocardiogram tape. Critical care nurses on duty at all times then compare baseline tapes with the tape being produced and can immediately identify changes and recommend the use of a self-administered drug, if needed, as the patient awaits an ambulance.

Students wanted to know how fast the drugs work and whether or not a prescription is needed. Reinhold explained that some drugs work within minutes. They may be self-administered but require a prescription and should be used only at the recommendation of a health care professional. "You would not want to take these drugs, or any other drugs, unless you need them."

In response to students' questions, Reinhold explained the functioning of pacemakers and reviewed research in new medications to treat heart problems. He showed students a Holter monitor, a small computer worn by patients for a 24-hour period to constantly monitor and record the heart's pumping action. The monitor has a drawer to which a telephone can be attached. This miniature computer can then "dump" 15 pages of information over the telephone to a medical facility showing a complete 24-hour record of heart performance.

Reinhold told students about his company's sterilized filling facility in St. Louis, where even the air is finely filtered and constantly flows away from

(continued on page 4)

Monitoring a student wearing a cardiobeeper, Reinhold explains how the tool converts the heart's electrical activity into a sound tone.

Mencarini merits resource award

Linda Mencarini, a teacher at Rockville HS who planned a symposium during Mathematics Education Week, has been selected as "Teacher of the Month," by the Montgomery Education Connection after being nominated by the other nine staff members of the mathematics department of her school.

Tom Banfield, math resource teacher at the high school explained. "We appreciate the job she did for the entire school through our math and computer science classes. All 1,300 students had the opportunity to hear the visiting speakers."

"What started out as a request for a speaker was transformed by Mencarini into a day-long mathematics symposium. Speakers from all walks of life came to share the significance of mathematics to their vocation. Included were: a real estate agent from Town and Country Realty, college professors from Montgomery College, a representative from the Montgomery County Consumer Agency, a statistician from the Washington Bullets, engineers from Vitro Laboratories and the National Bureau of Standards, a representative from the University of Maryland's Engineering department, a car salesman from Ken Dixon Chevrolet, an employee of Pepco and the supervisor of secondary mathematics from Montgomery County Public Schools.

Mencarini assumed the additional responsibility of arranging a complicated schedule to assign an appropriate speaker to each student level, making the best use of each resource.

Described by her colleagues as "warm, caring and a catalyst," Mencarini also was appreciative and sensitive to the needs of the speakers. "She provided flowers of appreciation, letters of thanks to the speakers' immediate superiors, a delicious brunch for them to snack on, and 'greeters' to give directions to the mathematics department area."

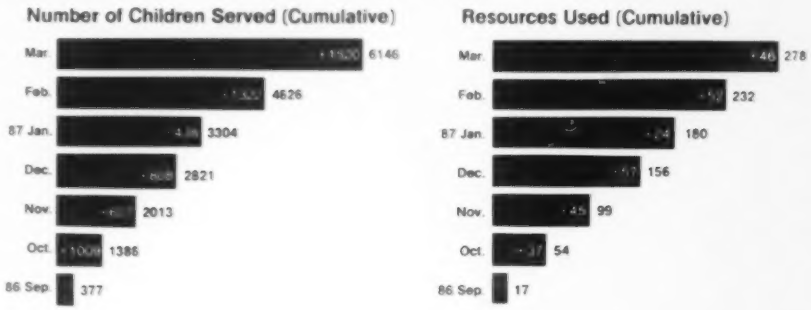
Mencarini's philosophy is that "math education is more than a classroom activity: it is preparation for life." Her response to the age-old student question, "How are we going to use this stuff, anyway?" is to look to community, business and government resources for the answer.

The symposium is not the only manifestation of Mencarini's unique style of attracting students' interest. "I employ very strange techniques in teaching. We do things like sing the quadratic formula. We have a 'Look for the Common Factor' song to the tune of 'Look for the Union Label.' (When my classes take an exam, they all hum.) We are going to measure the school flagpole with a plastic protractor, a straw and a ruler. Actually, I enjoy what I'm doing and I try to get my students to enjoy it as well. I knew as an eighth grader that I would be a math teacher. My math teacher that year was sick often, and I used to take over the class."

Mencarini has been teaching in Montgomery County for 17 years. Her consumer math and honors algebra II-trig classes have provided a stepping stone from which this creative teacher has reached beyond classroom theory and has drawn her students into the realities of life. ■■

Linda Mencarini makes math practical.

1986-87 Resource Bank Use



Arbor Day celebrated

Marshall Ray, a soil conservationist for the state of Maryland, helps 75 third graders at Lakewood ES plant a sawtooth oak tree on school grounds to commemorate Arbor Day (always the first Wednesday in April).

Mineral show

(continued from page 1)

Exhibitors directed students to the showcase displaying Maryland's "State Fossil," the Ecphora. On May 14, 1984, Governor Harry Hughes signed a state senate bill designating the Ecphora from the St. Mary's Formation of St. Mary's County as Maryland's official state fossil. The marine snail shells may be found in deposits from New Jersey to Florida. They are known to collectors as index fossils, as they are used to recognize as well as correlate geological strata of similar age.

Students had an opportunity to polish stones to take back to their classes. Four polishing machines were run by society members, one of whom had spent almost four hours preparing 300 stone specimens that had been cut in an oval shape (using a small template) and mounted on "dop" sticks (a dowel-like rod dipped in sealing wax) so that they could be safely polished by students. Each machine had four degrees of abrasive grit, 100, 220, 400, and 600. Students polished their rocks beginning with the coarsest grit and working their way up to the finest. Cold water splashed over the rocks as they were being polished, and students were surprised at the white, powdery residue staining their fingers.

One of the most popular exhibits was a "fossil preparation table" covered with bones and overseen by Mike Ellwood, a computer contractor at the National Aeronautics and Space Administration (NASA) and member of the Calvert Marine Museum Fossil Club. Students were able to pick up the many bones and teeth exhibited. One unusual-looking bone was described as "the barb on the end of a sting ray's tail." According to Ellwood, "Going in barbs hurt, and coming out they hurt more." The lower jaw of a porpoise, a shark's jawbone (with five rows of teeth clearly visible), and a 15-million-year-old shark's tooth about the size of a fist were a few of the exhibits on this "touch me" table.

The Gem, Lapidary and Mineral Society of Montgomery County, Maryland, Inc. was begun in 1963 when a group of eighth graders at Julius West JH formed a Gem Club in the school. By the end of the school year, several adults had become interested and meetings were held in private homes. Over the years, the group met at various recreation centers and now meets regularly at Herbert Hoover JHS. The club's most important goal is to create an interest in, and procure a knowledge of, the various phases of a hobby that can be enjoyed by everyone from preschoolers to senior citizens.

Teachers are encouraged to bring their classes to next year's show, which always takes place in the third week of March. Members of the Gem, Lapidary and Mineral Society will visit classes throughout the school year to give fossil and mineral talks and will bring specimens with them. Call Judy Messitte at 279-3125 to book the field trip or arrange for a speaker to visit. ⁘

Jean Hirsch, a Resource Bank volunteer, has spent hundreds of hours on the phone this year filling teachers' requests.

Crisis equipment

(continued from page 2)

the injector-filling stations to protect the product during assembly.

Some of the students' questions were so astute that Reinhold and his colleagues have been led to re-examine some old problems in a new way.

This opportunity to explore state-of-the-art medical technology with an expert in equipment design helped students connect the personal needs of human beings with the technical advances being developed in response. ⁘

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Connection Resource Bank

...Of Interest

October 1987 Volume II, Number 1

Student gazes intently at the spectrum of a laser at NBS lab.

Students 'see the light' at NBS

At the National Bureau of Standards in a lab crowded with scientific paraphernalia, atomic spectroscopist Dr. Joseph Reader seized the attention of 16 8th graders from Joan Cromer's science class at Takoma Park IS.

"Have you been reading the newspapers lately?" he began. "What's new in the news?" Shouted answers of "the Celtics," "superconductors," and "supernovas" generated more leading questions. "How do we learn about supernovas?" "By using a spectroscope," was the rejoinder. "Who's ever seen a laser?" Hands flew up. "What's a laser look like? What color is it? Who's ever seen the spectrum of a laser?" Fewer hands were raised. "We're going to look at the spectrum of a laser today."

With this announcement, Reader proceeded to amaze students with the natural phenomenon of light. He explained that by "looking at the spectrum of light emitted by an object, scientists can tell the composition of the object and also how fast it is moving relative to the observer."

To demonstrate this principle, Reader provided four six-inch spectroscopes (that cost about $100 each and looked like small spyglasses) to be passed among the students as they examined the spectra of a tube of neon that

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Newsletter spotlights available resources

Welcome back to the Connection Resource Bank and to *Of Interest*, a monthly newsletter published by Montgomery County Public Schools (MCPS) through a grant from the U.S. Department of Education's "Excellence in Education Awards."

Of Interest is designed to help teachers learn about the rich resources of the business community and in the Washington metropolitan area that are available to MCPS teachers and students through the Resource Bank.

The bank is a data base of over 1,450 businesses and individuals who have volunteered to share information and expertise with students and teachers. Supported by the Montgomery Education Connection, Inc., a non-profit foundation comprised of business leaders, the bank has extended and enhanced the curriculum in science and mathematics.

During the 1986-87 school year, more than 375 teachers "booked" resources

(continued on page 7)

Talk, talk, talk at the Children's Museum. See story on page 6.

Technical studies open options for females

MCPS is paying attention to how female students feel about studying higher level math, science and computer science.

Three sex equity conferences sponsored by the Office of Instruction and Program Development in conjunction with the Department of Human Relations were held at the Gaithersburg Marriott in May. They were designed to carry out the initiatives adopted by the Board of Education in August, 1985, to encourage greater female enrollment in higher level mathematics, science and computer science courses and to improve female SAT scores in these fields.

The audience of 550 consisted of two students, two parents, a math, science and computer science teacher, as well as a guidance counselor, media specialist, career technician and an administrator from each secondary school in Montgomery County.

Course Selection and Stereotypes

Dr. Susan Gross of the Department of Educational Accountability (DEA) explained two major findings of a study that examined the performances of MCPS male, female and minority students in math and science.

Using the Scholastic Aptitude Test (SAT) results as a basis for comparison, DEA determined that for males and females who take no math after geometry, males score about 40 points higher than females. The same gap exists for males and females who take higher level math courses. It became clear that course selection does not account for these differences in performance.

According to Gross, in examining why males continue to outperform females in math, "Stereotypes still seem to be very much in place. Across the county we have girls who feel they are as good as boys in math; boys who do not think girls are as good; parents who tend to be more willing to say boys are better performers in math; and teachers who are willing to recognize boys' performance more than girls'. This is giving the girls a double message. They are surrounded by the perception that, yes you belong here, but you really don't. Boys and girls have different expectations themselves as to who needs math."

Gross explained that statistically, minority children often begin to work below grade level in math in the elementary grades and therefore are not eligible to take higher level courses in high school. "No one was ready for the pattern being established so early as our statistics indicate. Although our kids are doing well by national standards, the questions we are asking are what really causes these stereotypes to still be in place and what can we do about them."

(continued on page 7)

Kris Bassett, electronics student, discusses her career choice.

Panelists at sex equity conferences urge students to select higher level math, science and computer science courses.

Master plumber Sanford Kramer talks to students at Banneker JHS about the importance of mathematics, English and social skills.

Plumber digs into career and preparation

Sanford Kramer, president of Sanford Kramer Plumbing, took time from "pulling toy fire engines out of toilets and stopping floods in basements" to explain the details of his job to twenty 7th, 8th and 9th graders at Banneker JHS.

Lynn Usui, Richard Sprecher and Hester Lehnert, part of Banneker's special education staff, arranged for a series of 14 speakers to visit and discuss their jobs. Kramer, supplied by the Resource Bank, is a 27 year-old master plumber who has been working in the field for 10 years and in business for himself for 5 years.

Explaining that his interest in plumbing began when he was five years old and watched a plumber dismantle a toilet to extract a pen dropped in by an older brother, Kramer shared the process of his career decision. "I graduated from Kennedy HS and was not interested in college. I liked to fix things, take things apart. As a teenager I got involved with repairing lawn mowers as a hobby. I didn't mind getting grease on my fingers. I thought plumbing would be work I could enjoy, so I went away to trade school for two years, graduated and came back to this area as a plumber's helper."

Plumbing requires a variety of skills, according to Kramer. "You have to be able to listen well and learn to work with tools. Following directions is a critical skill. You have to be neat; you can't leave a mess on the customer's floor. Safety is a big thing in this business. We work with power tools and torches. Map reading is important. Punctuality is important. If you're not on time you can be fired. Educational skills such as reading, writing and arithmetic are very important in plumbing. You have to be able to measure how much pipe you need. You must be able to read a blueprint."

Social skills are critical to this profession. "Plumbers must be able to get along with people. Many people who call a plumber don't understand what's going to happen when he arrives. Patience is an important part of customer service."

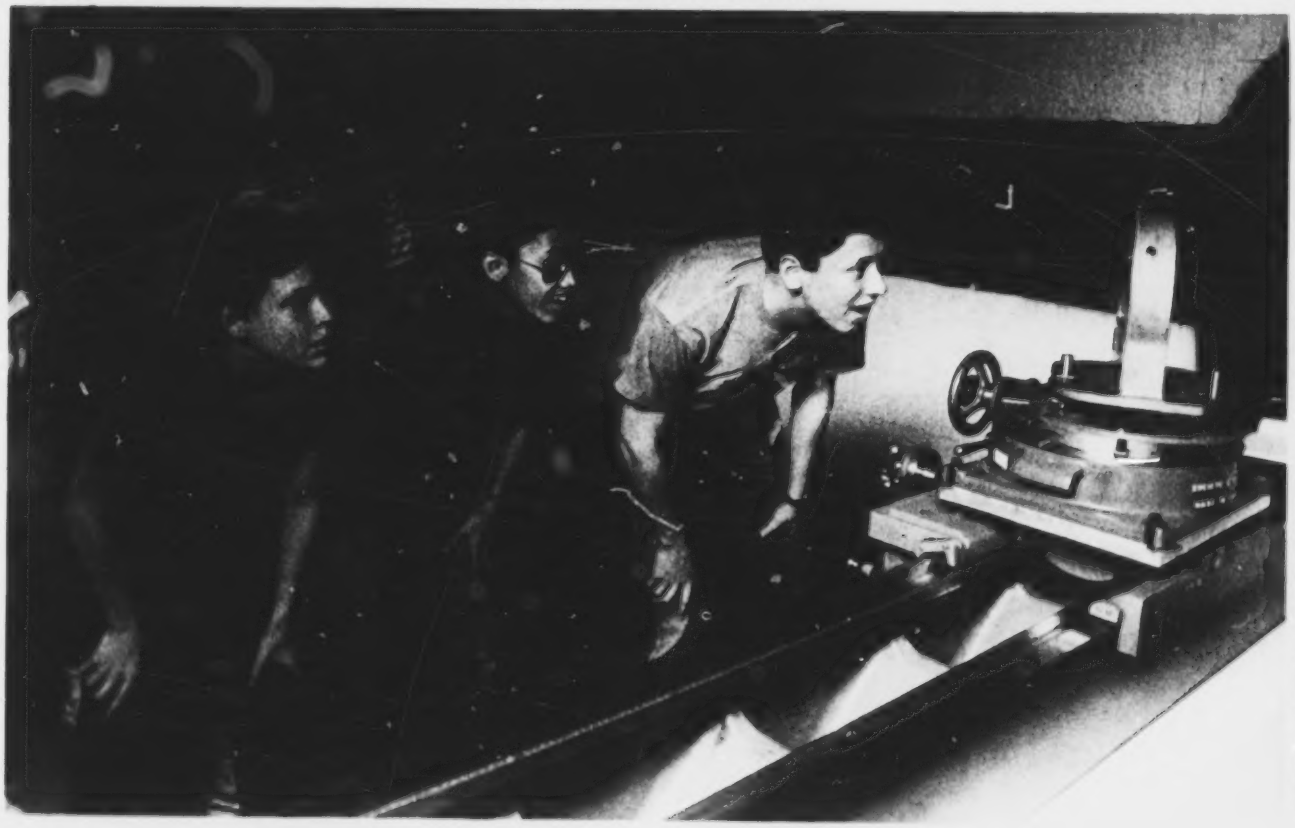
Getting down to the nitty-gritty, Kramer explained the different levels of experience plumbers have and the salaries they can expect. "Just out of high school a starting plumber with no experience can expect to earn the minimum wage. With a vocational education background or trade school experience, the salary is $6 an hour. An experienced journeyman plumber with 4-5 years experience will earn $15 an hour. The test to move from journeyman to master plumber is difficult. You have to be able to read blueprints and plan the plumbing system for a high-rise building."

Standard fees are $34 for a service call lasting half an hour and $8.50 for each 15 minutes following. A plumber in business for himself has expenses that include insurance, purchasing and stocking a truck, buying materials necessary for each job and paying employees.

Job interviews are another aspect of plumbing Kramer shared with the class. As an employer, he emphasized his interest in the school grades of pro-

(continued on page 7)

Students, above, compare the spectra of different sources of light at NBS. Below, students follow the movement of the adjustor for a diffraction grating, a mirror on which 30,000 rulings per inch have been inscribed.



Spectroscopes in hand, students squint to see the spectrum.

Reader demonstrates lasers and light

(continued from page 1)

glowed a bright red and a tube of krypton made to glow a bluish color when both gasses were excited by microwaves.

Reader's plan to lead students to discover that fluorescent lamps are lit by mercury (by recognizing its spectral pattern) was foiled by a bright student who beat him to the punch by announcing that mercury is the element in such lights. Students looked at an incandescent light and a fluorescent light through the spectroscopes and compared their spectra.

As an interesting aside, Reader explained that mercury is dangerously poisonous. "Remember the Mad Hatter in *Alice in Wonderland?* People used to use mercury in forming hats. Many hat-makers went mad. That's where the term came from. Another danger of mercury is that the ultraviolet light from a mercury lamp can seriously damage eyesight by causing burns."

As Reader focused a helium-neon laser on a nearby wall, he explained that lasers are special because they are pure light and usually have only one spectral line. "A laser only gives one pure color. That's what distinguishes it from a lamp." Students huddled around the small red dot of light, spectroscopes in hand.

As a final treat, Reader took the entire class inside a spectrograph. The huge room was dark and contained a paperback-book-sized diffraction grating. He explained that the diffraction grating was a mirror on which 30,000 rulings per inch had been inscribed by a diamond. As the colors glowed in the darkened room, whispers of "Oh, wow!" and "That's cool!" echoed.

Asked the difference between a spectroscope, spectrograph and spectrogram, Reader explained that a spectroscope is "something you look through." A spectrograph is "a device to take a photograph of the spectrum and make a record." The spectrogram is "the permanent spectrum that results, the photograph, the record."

The Atomic and Plasma Radiation Division of the National Bureau of Standards does basic research on the spectra of very highly ionized atoms. "Some of the lasers we work with are bigger than a high school, so we put our spectrographs on wheels and go there." As they stood in Reader's laboratory, students were in the same room with the world's largest spectrograph, a 40-foot million-dollar piece of equipment.

Reader attempted to put scientific research into perspective for these students. "Sometimes a little thing might influence you to become a scientist, perhaps something you see here. Transistors are not very old—not much older than you. The laser and our knowledge of DNA are not much older than you. When you get older, you'll remember when high temperature superconductors were invented. They're going to change the world." By opening his laboratory to these students, Reader was inviting them to participate in that change. ∎∎

Dr. Joseph Reader "enlightens" students.

BEST COPY AVAILABLE

Communications exhibit at Children's Museum sparks private conversation.

Word gets around at Children's Museum

Albert Ketler, an 8 year-old third grader in Francis Elder's TOK program at Kemp Mill ES, wandered from room to room at the Capital Children's Museum seeking a special door and asking, "Where's the future? I don't know where the future is." He was standing in the middle of it.

The museum's communications exhibit offers Albert and his classmates the past, the present and the future of communications all in one place. Old telephones ("Where's the dial? Where are the numbers?") are next to laser phones. Fiber optics compete with old hand-crank wall phones for the attention of the children in this "touch me" exploratorium. Elder, with the stamina of a seasoned veteran, took all four of her classes to visit the museum.

Invitations issue from every corner. One computer lures students by speaking to them. "My name is Wisecracker. Come and type to me." Third grader Jhilya responds by typing, "I am Jhilya Femi Mayas," which the computer dutifully repeats aloud. The next student delights in instructing the computer to recite, "I am a dumb good-for-nothing computer." Spurts of laughter follow each pronouncement as the children learn about voice synthesizing.

In the Phone Room the walls are festooned with telephones in every color, for every conceivable purpose: business phones, information phones, fiber optic phones, electronic phones, laser phones, crisis phones, personal phones, electromechanical phones. Visitors can overhear appropriate pre-recorded conversations on each kind of telephone. Children can dial and speak with each other. "Listen to this!" echoes constantly as receivers are lifted and shared.

A Radio Room stirs adult memories as models of early radios in large wooden cabinets entice students with their cloth facades and glowing dials.

In the Computer Room an abacus introduces visitors to the language of mathematics. A huge leap in time enables students to explore computers and the vernacular of simulation, graphics, pattern recognition, binary code and music. From the computer's keyboard the sounds of flutes, organs, drums and trumpets emanate. Third graders can compose melodies and see the notes.

The earliest form of written communication covers the walls of a huge, dark, spooky cave full of twists and turns and creepy corners. Wall drawings of bison and natural phenomena invite touching and translation.

Unusual and secret forms of communication proliferate in the Code Room where visitors can use a Braille typewriter, investigate Morse code, the Ardois code (four electric lights in red and white that enable ships at sea to recognize each other), American Sign Language (displayed on a color TV screen), as well as "pig latin" and "the hobo code" (used by hobos to indicate to their fellow travellers the kind of reception they could expect at local homes).

At the Children's Museum, printing is a participatory skill. With a "presenter" giving instructions, students can ink and use an old-time printing press. Quill pens are available for practicing penmanship ("It feels terrible to write with!").

Strobe Theatre permits visitors to leave dynamic silhouettes of themselves in leaping and dancing configurations that change as the lights blink on and off.

Zoetrope cartoons created by young imaginations wiggle and squirm as the artists stare in fascination.

From caves to crayons, from sounds to satellites, a whole lot of "communicating" is going on at the Capital Children's Museum. Call the Resource Bank to book a visit. ■

Student attempts to translate "hobo code."

Females encouraged

(continued from page 2)

Panelists and Possibilities

Having confirmed the underrepresentation of females in higher level math, science and computer science courses, the conferences then focused their attention on the presentations of the panelists, each of whom addressed the importance of these higher level courses in maximizing career options for women.

Phyllis Fineberg, director of the ophthalmic medical assistants' training program at Georgetown University, emphasized the importance of taking biology, chemistry, physics, psychology and computer science in high school as a background for working in the allied health fields.

Caveats about the loss of career options were repeated by Dr. Linda Clement, director of undergraduate admissions, and Dr. Mary Cothran and Sharon Alston from the University of Maryland. Dr. Clement noted that students entering college weak in science and math may discover a career requiring this background and have to play catch-up to open options. She also explained that college admissions offices look carefully at the courses a high school offers and the choices a student makes, and advised that opting for honors or AP courses strengthens a student's credentials more than maintaining a high grade point average by selecting less challenging courses.

Dr. Vera Zdravkovich, chairperson for the physical science department for the Prince George's Community College, echoed a similar theme and cited many female scientists of note who earned their reputations when it was uncommon to find women in scientific fields.

Mary Lou Fox, manager for marketing and development in logistics for the software division of STSC Corporation and a member of the Montgomery County Commission on the Future, asked the audience to consider what the year 2020 will be like and what preparations should be made now to meet future needs. Explaining that there will be a dramatic decline in industrial work and a vast increase in information and service work, Fox warned that, "It is imperative to dramatically increase the preparation of our women and minorities to take their places in the computer science field."

Kris Bassett, a senior at Bethesda-Chevy Chase HS and an electronics student at the Edison Career Center, spoke about her interest in electronics and her plans to enter the Air Force after graduation. Central to her career choice was the support she received

(continued on page 8)

The wall mural at the Capital Children's Museum stretches imaginations and bodies, challenging visitors to locate as many means of communication as possible.

Resources highlighted

(continued from page 1)

through the bank and more than 11,000 students met with experts in such varied fields as lasers, banking, fossils, medicine, economics, insects, computers, psychology, atomic energy and city planning. The data base currently emphasizes math and science and will gradually be expanded to include more curriculum areas.

A telephone request to bank coordinator Judy Messitte (762-6192) will initiate a search for the appropriate expert, program or field trip. Once contact with the resource has been made by Messitte and availability confirmed, the teacher will be given the information and asked to contact the person or organization directly to discuss specifics.

This issue of *Of Interest* offers a small sample of the resources available and in use. "Let your fingers do the walking." One phone call can bring the National Bureau of Standards, Vitro Corp., the Patent Office, a master plumber or an atomic spectroscopist into the classroom. ∎∎

Plumbing careers

(continued from page 3)

spective employees, especially in math. "Plumbers need to be able to calculate the size and amount of materials they will need for a job and must be able to figure the cost of labor based on the time spent on a job." He surprised his audience by also being interested in their school attendance record.

Students wanted to know how many people Kramer has working for him ("Two plumbers and myself. I'm looking for help now. It's a good business with lots of growth potential. There is always a need for plumbers.") Other questions included: "Do you advertise?" ("Most work comes from word of mouth, people telling other people.") "Do women go into plumbing?" ("Yes, there are a few. The only limiting factor may be physical strength.")

Following his presentation, Kramer offered students a "hands-on" look at his service vehicle, which was filled with the tools of his trade and sprouted pipes of all lengths from the roof. As the class clustered around the vehicle, Kramer explained that for a plumber every day is different. "We stop floods and cut tree roots out of toilet pipes. It's not boring work." ∎∎

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Sex equity

(continued from page 7)

from her electronics teacher at the Edison Center.

Career changes and preparation were explored by Dr. Carol Kleinman, a psychiatrist who began her professional career as a lawyer.

The final panelists were Captain Connie Custer and Captain Gretchen Anderson, Headquarters AFSC, currently assigned to the Systems Command Briefing Team for the Air Force (responsible for all the research and development for that branch of the armed services). Encouraging students to strengthen their backgrounds in math and science, Custer explained that, "Technically oriented people are on the leading edge of research. Young men and women need to explore their potentials so they can then explore their opportunities."

Discussion and Direction

As a culminating activity, the audience broke into discussion groups by high school clusters and considered the question, "What can we do to increase the numbers of females in higher level math, science and computer science courses in our schools?" The suggestions resulting from these discussions will be evaluated and considered for implementation this fall.

Editor's note: An increase in this year's SAT scores was entirely attributable to higher math and verbal scores attained by female students. These scores were not known at the time of the conferences.

At museum, young printers use old press.

Teachers to be recognized for resource use

The Montgomery Education Connection wants to recognize teachers who have made outstanding use of business and community resources. Beginning in November, one teacher each month will be selected from nominations submitted by school system personnel, Education Connection members, or self-nomination.

Each month's winner will be granted a day of administrative leave to visit a business or government agency that functions as a resource for MCPS. Funds for a substitute teacher will be provided by the Connection. In addition, an honorarium of $100 will be awarded for the teacher's private use. *Of Interest*, the Resource Bank newsletter, will feature an article on each teacher selected.

Teachers qualify for the award based on their innovative and successful use of business and other community resources to enhance and extend the curriculum.

Judges, chosen by the board of directors of the Connection, come from member organizations. The selection committee urges administrators, teachers, parents and potential candidates themselves to submit nominations.

Nominations are due on November 1st for December selection and should be sent to Sally Keeler (CESC, room 112), who will forward them to the selection committee. Nomination forms are available in all school offices, but nominations may be made without the form. They must include the nominator's name, title and phone number, and the nominee's name, school address, phone number, subject area and grade level. This information should be accompanied by a detailed description of the nominee's use of business and community resources.

Copies of last year's winning entries can be obtained as guidelines from Anita Sweigert, National Bureau of Standards, Physics Building Room A360, National Bureau of Standards, Gaithersburg, MD 20899.

call
Judy Messitte
at the
Connection Resource Bank
to book a resource
762-6192

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

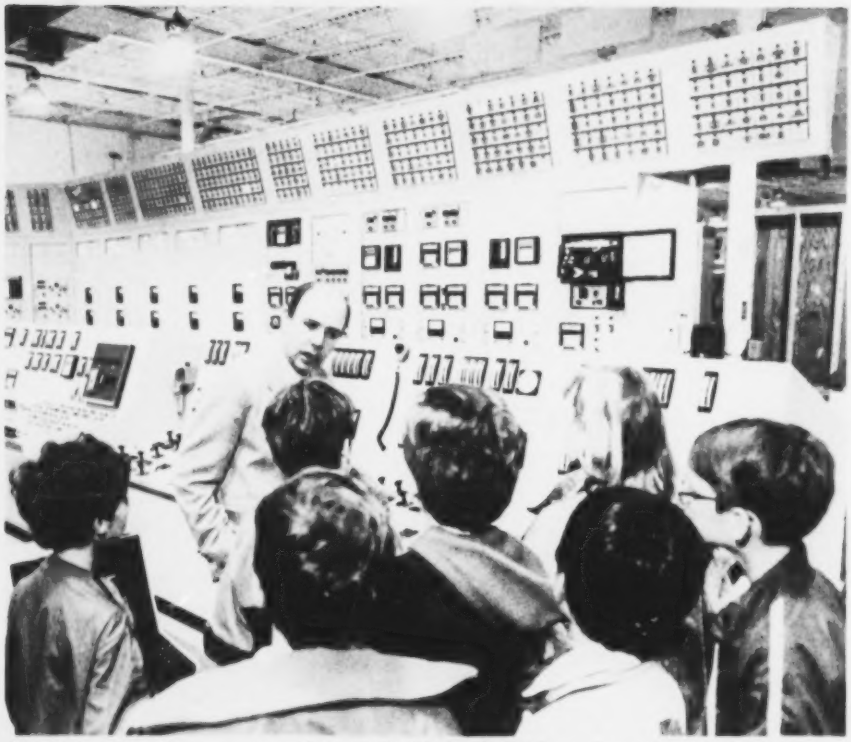
Harry Pitt, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866
384-2300

Connection Resource Bank

...Of Interest



Students from the computer club at Ritchie Park ES learn how simulators are made and used to train operators of power generation plants.

Simulation is art and science

Want to know what it's like to control a nuclear reactor? In a room full of blinking, flashing and buzzing electronics equipment worthy of the final scene in a James Bond movie, 26 of Diane Davies' 5th and 6th grade computer club enthusiasts from Ritchie Park ES found out.

Four engineers and program managers at Singer's Link Simulation Systems Division, Columbia, MD, spent their lunch hour demonstrating the technology that crosses the line between imagination and reality.

Simulation, the art of pretending and the science of practicing, is taken seriously in the scientific community. Rising operating and capital costs, increased safety requirements and the growing complexity of equipment and processes have stimulated higher demand for sophisticated simulator training systems.

Amid tens of millions of dollars worth of equipment, toggle switches, colored lights, circular gauges and blue-coated computer cables that snaked like spaghetti into holes in the floor, students got a taste of applied research.

At Singer Link, control rooms are designed to simulate the management of power generation systems, nuclear reactors, steam generator plants, boiling and pressurized water reactors and fossil fuel plants. These high fidelity

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Why math?

At Rockville High School's annual mathematics symposium, students discovered that they are destined to be conspicuous users of mathematics. Each of the 45 math classes in the school had a speaker, film or presentation that emphasized the relevance of math in today's world and in students' lives.

Dr. Sandra Frattali, a safeguard systems analyst with the Nuclear Regulatory Commission (NRC) said her math background was a kind of safety net. "I was a chemistry major in college. I took a lot of math because I liked it. In graduate school I majored in chemistry, but my math background saved me in the real world. It gave me an edge in the job market. It kept my options open."

While raising a family, Frattali had part-time jobs as a home instructor in mathematics and calculus. When she applied for full-time work with the federal government, her extensive background in mathematics qualified her for higher level positions.

Dr. Christine Stevens is associate program director of teacher preparation and enhancement with the National Science Foundation. She told students how important math was to her during the year she was a Congressional Science Fellow in the office of New York Congressman Ted Weiss. "No one ever said, 'Hurry, the Speaker of the House wants you to solve this quadratic equation!'" she said, but her math knowledge still paid off.

Congressman Weiss received a letter from a 67-year-old female constituent complaining that she had received a letter from the Army asking her to volunteer and promising a digital watch if she returned the business reply card. She was annoyed that the Army was giving away a watch at taxpayers' expense, and more annoyed that the Army seemed to be recruiting senior

(continued on page 2)

Mathematics

(continued from page 1)

citizens. Stevens drafted a speech for the congressman asking how much these things cost and why was she on the mailing list.

The next day a major and a colonel arrived at Weiss' office with "a lot of graphs about the Army recruiting program. They were trying to overwhelm me with graphs. I don't mean to single out the Army. This is a technique we see a lot of on Capitol Hill. They picked the wrong person to intimidate with graphs and were greatly surprised that someone in a congressional office could interpret them. Because of my math background I was able to ask intelligent questions.

"Congressional aides often have a liberal arts (English, history or political science) background and are not interested in the quantitative side of issues. They usually don't ask if predictions they are being shown are reliable. Often they don't understand enough math and science to be able to determine if they're getting the true picture of things.

"My experience in congress made me see how math may become important in a career outside of mathematics, such as in business or government. You need to be able to take numerical data and interpret it. Whatever field you're planning to go into, you should take as much math as you can, and take it seriously. There's no point in paying tuition in college to take courses you could have taken in high school for free."

Dr. Lee Abramson, a senior research statistician from the NRC, visited a geometry class and explained in detail how mathematics was used to determine the probability that planes taking off and landing at an airport near Three Mile Island posed no threat to the nuclear reactor. Covering the board with lines, angles, flight paths and statistics, Abramson showed how the NRC used a mathematical model to analyze the likelihood of an accident occurring.

Dr. David Morgenstein, a statistician and vice president of WESTAT, an employee-owned research corporation, met with a beginning statistics class and talked about designing surveys.

WESTAT's Dr. David Morgenstein

NSF's Dr. Christine Stevens

NRC's Dr. Lee Abramson

NRC's Dr. Sandra Frattali

Morgenstein explained the kinds of issues his company is asked to explore: how many buildings in the country have asbestos in them; how healthy are Americans; what effect did agent orange have on Americans; how many homeless are there in America; how orally healthy are school children in America. Since his company can't examine all the buildings in the country, or count all the students' cavities, they design surveys to predict the desired information.

"We're currently involved in an analysis of oral health in students. We have 13 teams spending one month each at 88 sites. We are counting cavities." Using the overhead projector, Morgenstein demonstrated the development of a survey, from design, through monitoring the field work, developing the sampling weights and finally, to analysis of the data that he characterized as "the fun part." Interacting with the class in a lively give and take, Morgenstein emphasized that designing surveys "is a science, not an art."

The Resource Bank has a data base of speakers who can help students understand the need for learning the language of mathematics. The message at Rockville HS was, "Take math and take it seriously. You're going to need it!" ■

Simulation

(continued from page 1)

replicas allow trainers to duplicate the performance of power plants under all conditions to ensure safe training experiences for those who will monitor the plants.

Sitting at a computer surrounded by a huge C-shaped bank of consoles sprouting handles, buttons, switches and dials, the instructor can enter data to simulate any kind of plant malfunction. Like an orchestra conductor, he or she can cause things to occur in real time, slow time, step time or fast time. Each trainee can be monitored, and instant replay allows no error to go unexamined. Instead of wasting the days it would take to bring a real power plant up to full power, the instructor can reset the simulator to 100 percent power at the touch of a key.

As the visitors stood next to five 300 megabyte hard computer disks, it was difficult to hear the instructor because of the overwhelming humming, whirring and throbbing of the disk drives. The heat was palpable, and the guide explained that a great deal of energy was used to run fans to cool the equipment. "One of our constraints is how much heat we can tolerate and dis-

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Watts happening at PEPCO?

Michael Bennett, a systems engineer with Potomac Electric Power Company (PEPCO), faced 26 highly gifted 6th graders in Susan Lakomy's class at Cannon Road ES and explained the rules of a game.

"I'm going to ask questions testing your knowledge of electricity. Divide yourselves into two teams and choose captains. You all must agree on an answer and the answer has to come from the team captain. The team with the most points at the end of the game wins."

After several moments of chaos, the "Newts" and the "Yankees" emerged as competing teams and sat cross-legged on the floor.

Bennett: "Yankees, there are two types of current, name both types."

Yankees: "DC and AC."

Bennett: "Newts, which type of these two currents does PEPCO generate?" (The Newts answered wrong; the Yankees got an extra point by correctly answering "AC.")

Bennett: "Which of the two types, AC or DC, can be stored?"

(Heads ducked into a huddle and whispers abounded. Finally, a consensus emerged.)

Newts: "DC."

Bennett: "Give me an example of what DC current is."

Newts: "A battery."

Bennett: "How fast does electricity travel?"

Yankees: "186,000 miles per second, the speed of light."

Bennett: "Correct! Pepco generates AC and it can't be stored. Therefore we have to produce it continuously. So every time you plug in an appliance you are plugged into a power plant. Newts, what fuels does PEPCO use to make electricity? I'm looking for three answers."

Newts: "Gas, coal and oil."

Bennett: "Very good. What kind are they?"

Newts: "Fossil fuels."

Bennett: "Why are they called that?"

Newts: "They form when animals die."

Bennett: "This is a tough one. Fossil fuels are chiefly composed of three elements, hydrocarbons, sulfur and ash. Which of these three components is responsible for acid rain?"

Yankees: "Sulfur."

Bennett (beaming): "Correct! We'll go through some combustion chemistry really quickly. The end result is sulfuric acid. (Chemical symbols covered the board.) Let's move on. Newts, this is an easy one. What percent of the electricity that PEPCO generates is from burning coal—65 percent, 85 percent or 90 percent?"

Newts: "85 percent."

Bennett: "No, the answer is 90 percent. If you look at the three fuels, coal is by far the cheapest. We try not to rely on oil. The price is expensive and fluctuates. Now, Yankees, here's a real challenge. We have a plant at Morgantown with two boilers having a combined capacity of 1,200 megawatts. How many watts is that?"

Yankees: "One million two hundred thousand."

Bennett: "Any other guesses?"

Newts: "One billion two hundred million."

Bennett: "How many 100 watt light bulbs is that?"

Newts: "Twelve million."

The questions began to get more difficult. Bennett asked for the name of the actual piece of equipment that generates electricity. Moans arose out of both huddles as the contestants struggled to come up with an answer. "We know that! Don't say it! It's hard! It's impossible! It's tricky!" Bennett prompted his audience and reluctantly an answer was offered. "Generators?" "That's the answer," Bennett responded. "Most people think it's a turbine, but it's the generator."

Launching into a discussion of how PEPCO gets power to each house, Bennett explained about amps, volts and transformers. A discussion of the dangers of lightning followed. Bennett asked the teams which of the following appliances used more or less electricity than a 100 watt lightbulb: an average

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Michael Bennett, PEPCO systems engineer, challenges Cannon Road's 6th graders to an "electricity quiz."

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'Flying' resources fill semester

When Denise Knoller decided to teach a semester unit on flying to her four Thinking Opportunities for Kids (TOK) classes at Greenwood ES, she knew she had her work cut out for her. She called the Connection Resource Bank for help.

Explaining her needs to Judy Messitte, Bank coordinator, Knoller was able to plan a series of speakers and visits that would open the world of aeronautics to her students.

Her classes learned about flying from pilots, an aeronautical engineer, and an aerospace education specialist with NASA. They also took field trips to both Andrews Air Force Base and College Park Airport, the oldest airport in the United States.

All of this exposure has whetted Knoller's own appetite for flying. "I got so excited about it, I'm going to plan a flight on a glider. I'll begin as a passenger."

The following articles represent a sample of the expertise shared with Knoller and her students.

Students visit control tower at Andrews Air Force Base.

Andrews AFB welcomes students

Seeing is believing, so Denise Knoller took all four of her TOK classes that are spending a semester studying aeronautics to Andrews Air Force Base, the busiest military airport in the country.

Under the guidance of Sgt. Charlie Michaelson, Tuesday's students explored the base from top to bottom, beginning with a visit to the control tower, 13 stories high and 250 feet above the ground. On a clear day the visibility is 10 miles.

Sharon Girvin-Davison led one group around the tower, explaining the equipment and the procedures. Flight controllers were directing in-coming and out-going air traffic as students stood behind them, listening to the radio transmissions and watching radar screens.

From the light-filled, glass control tower, Davison led her group into the small, dark radar room, lit only by the greenish glow of the constantly revolving beams of light sweeping across the busy screens. There, in hushed tones that would not be picked up by the controllers' microphones, she explained the blips (aircraft) that were appearing on the screen.

Davison explained in detail how flight controllers are trained and what they need to know about how airports differ, such as the length of the runways. For instance, to become a full performance level (FPL) flight controller at Baltimore Washington International Airport requires four years of training.

Riding across the tarmac from the control tower to the helicopter hanger, students passed the aircraft flight line. Each aircraft was introduced by Sgt. Michaelson. "This is a VIP plane belonging to an international visitor. There's a NASA space shuttle chase plane. That's a C130 Hercules that can carry several jeeps, and a C141 Starlifter that can carry jeeps and tanks. Boy, we're lucky today. There's an F15 Eagle, a state-of-the-art fighter plane for the Air Force!"

The next stop was at the First Helicopter Squadron briefing room where a nine minute video tape about the squadron's history was shown, and students were encouraged to question flight engineer L. G. Nichols who guided them on the next leg of their journey.

From the briefing room the next stop was the cavernous hangar and onto the huge helicopter. Students clambered into every nook and cranny of the plane, sitting in the pilot's seat, the passenger seats, trying on headphones and jumping from the back loading platform. Nichols stood beneath the huge rotor blades and talked about the physics of flight. He explained that each of the 5 blades was 60 feet long, weighed 209 pounds and rotated 203 times per minute. He demonstrated how the blades can be manipulated to change altitude or direction.

Accompanied by the roar of a departing jet, the students returned to the bus and to Greenwood better grounded in the fun-damentals of flight.

Knoller demonstrates propeller position.

Tracy Prior (above), a pilot for American Airlines who flies a Boeing 727 jet airliner, demonstrates how an aircraft is affected by the "relative wind." Melinda Cerisano (below), a communter pilot for American Airlines, uses body language to explain how an aircraft "banks" to turn. Behind her is an illustration of the cockpit instruments of her aircraft.

Pilots discuss plans and planes

The "wild blue yonder" came indoors with American Airlines pilots Tracy Prior and Melinda Cerisano who stirred the imaginations of 25 potential colleagues in Denise Knoller's 6th grade TOK class at Greenwood ES. Daughters of flyers, both women shared a unique vantage point, explaining how to become pilots, how a plane flies, flight controls, flight rules and the lifestyles of pilots.

Prior, who flies a Boeing 727 jet airliner, knew when she was 12 that she wanted to become a pilot. As soon as she was old enough to drive herself to the airport she began taking flying lessons. Cerisano flies a commuter plane for American Airlines. She admits, "I never knew this would be my career. My dad had a plane and I thought it would be fun to learn to fly. I began to fly as a hobby when I was 20. Before I knew it, I had a pilot's license and then, tunnel vision: I just kept going."

Both women explained that to become a pilot "you have to use your head, make quick decisions, have discipline over your body and yourself, be able to communicate and make good grades in school." They emphasized the importance of taking math and science courses.

Presenting the military and civilian options to qualify for a pilot's license, Cerisano and Prior discussed how to earn both instrument and commercial ratings. They shared stories about how they built up their flight time to fulfill the requirements. Cerisano was a traffic pilot reporting on road conditions and Prior flew banners up and down beaches. Instructing is another way to add hours of flight experience.

Moving to the technical side of flight, the women used models, photographs, imagination and body language to explain how a plane flies. Students were intrigued by the "love story" of Ollie and Mollie that graphically explained Bernoulli's Principle (as air pressure decreases, lift increases).

"Ollie and Mollie were two molecules of air who were in love and just wanted to be together. Separated by the leading edge of an aircraft's wing, Mollie scooted quickly under the wing. Ollie, who had further to travel over the

(continued on page 6)

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NASA educator demonstrates flying

Norman Poff, an educator with the National Aeronautics and Space Administration (NASA) visiting from Texas to lecture at the Smithsonian, took time to visit one of Denise Knoller's classes to share his "grab bag" of aeronautical expertise.

During an informal two hours, Poff challenged the class to name the first successful machine that flew without a person in it (a kite), and told about the first hot air balloon to fly with people that was launched on Nov 1, 1783.

A series of slides helped Poff clarify NASA's mission. "NASA tries to find something good that's new. We don't develop aircraft. Our only product is knowledge. We let companies make products. We try to solve problems, so we're involved with safety."

He explained that small aircraft models used in wind tunnels, and larger remote controlled models, allow NASA to get "a lot of information very fast" and very safely. "We test the effect of rain on aircraft. We test tires. We test for icing. We test the effect of lightning on aircraft by flying into thunderstorms."

In an attempt to develop technology that will prevent aviation fuel from burning when an aircraft crashes, NASA performed an experiment using dummies wearing different kinds of clothing and seats covered in a variety of fabrics to see how they would react in a crash. The obsolete plane used to test the special chemicals mixed in the fuel crashed too soon and a series of slides documented the failure of the chemicals to prevent a fire.

Reaching once more into his grab bag of aeronautical "goodies," Poff showed a 16 minute video called "Aeronautical Oddities." The video was about experimental aircraft designed in the 1920s. With names such as "The Flying Barrel," "Flying Wing," "Test Spindle Plane," "Potato Bug," "Flying Umbrella," "Sky Car," "Flying Butcher," and "Bird Plane," the inventions bumped, jumped, crashed and splashed their way across the screen engendering gales of laughter. Poff was quick to point out that from these imaginative inventions and frequent failures has come tomorrow's technology.

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NASA educator constructs a "ring-winged" aircraft.

Pilots teach physics of flight

(continued from page 5)

wing before he could rendezvous with Mollie at the trailing edge, had to move more rapidly. Because he was moving faster Ollie created low pressure and caused a suction (lift) that pulled the wing up."

Discussion and diagrams continued as lift, drag, thrust and gravity were explored and explained. Terms such as "angle of attack," "relative wind," "chord line," and "trailing edge" were illustrated and demonstrated. In a kind of dance choreographed by the laws of physics, both speakers used their arms and body angles to simulate the forces acting upon an aircraft in flight.

Cerisano talked about flight controls and self-control. The flight controls "allow you to physically make the plane do what you want it to do. That's the fun part!" She explained the function of the aileron, elevator and rudder as students labeled parts on a schematic of an airplane. She emphasized the importance of a pilot's physical coordination. "You must be able to control your body well to fly." Pilots must have self-discipline and be physically fit.

As part of their presentation, Prior and Cerisano brought visual and instrument flight maps used by pilots to navigate. A VFR (visual flight rules) map shows all airports circled boldly in purple and is used by pilots who navigate by sighting landmarks. An IFR (instrument flight rules) map is covered with blue lines, each of which is a vector and has a number. Pilots are told which vector to fly and they can fly and land depending upon their instruments when clear vision is impossible.

Photographs of the control panels of different planes allowed students to compare the levels of complexity involved in flying a training plane and a 727 jet.

Prior explained that flying involves "a lot of hard work. You don't always know your schedule; you work for three days and then you rest for three days. You can select the days you want to work and the trips you want to make, but you have to bid for them and bidding is by seniority."

Questions were invited and the class responded. "How much does a pilot make?" ("Top captains make $150,000 a year. A flight engineer begins at $18,000 to $20,000. An Air Force fighter pilot makes about $60,000 a year.") "Why can't women fly in combat?" ("It's a federal law.") "How many pilots are women?" ("Out of 7,000 American Airlines pilots, one percent, about 70-80 pilots are women.") "Do you have to go to college to be a pilot?" ("I would recommend a degree. The degree shows you're trainable. It's a very competitive market.")

Sixth grader Meghan Poslusny's thank-you letter to Prior and Cerisano expressed a common reaction to the presentation. "I loved your presentation. You got me more interested in aeronautics. Now I am trying to decide whether to be a doctor or to fly planes. Happy Flying!" Lane Garrett was a little more graphic. "It's like my interest in being a pilot was dynamite and you were the fire. After your show, my dynamite exploded!" ∎

Seikaly selected teacher of month

Elaine Seikaly, magnet coordinator at Takoma Park IS, has been selected as Teacher of the Month based upon her outstanding use of community resources and the programs she has developed for her students.

For each of the past three years, more than 500 students at Takoma Park have attended Conferences on the Future coordinated by Seikaly. Experts from such diverse areas as artificial intelligence, organ transplants, telecommunications and the space station have shared their experiences and encouraged students to pursue science as a career.

Seikaly also organized two annual conferences on alternative careers for women. The goals have been "to encourage gifted females to enroll in advanced science and math courses by having successful women in science and math careers share their experiences." Speakers have included women in chemistry, horticulture, physical sciences, systems analysis, engineering, accounting, neurology, veterinary medicine and oceanography.

Seikaly has linked the past, present and future by arranging an intergenerational project involving an 8th grade magnet earth science class that visited residents of the National Lutheran Home for the Aged and talked to residents about their memories of the appearance of Halley's Comet 75 years ago.

In cooperation with the Public Health Service, Seikaly coordinated an Hispanic Leadership Conference that provided mentors for 20 intermediate school students who will work with them right up to the time they are ready to get jobs. The entire conference program was conducted in Spanish.

For the past two years Seikaly has staged a Black Leadership Conference involving 20-30 black students, each of whom was provided with an individual role model from such businesses and offices as Dominion Bank, Social Security Administration, Food and Drug Administration, Public Health Service and the Office of the Assistant Secretary for Health.

Seikaly also has taken a step beyond providing adult role models for students. In a program called Teens in Action, modeled after a National Institute of Drug Abuse program, she has provided an opportunity for peer role models to share their decisions not to use drugs with the entire school. Through the English department students were asked to write essays centered around decision-making and peer pressure. One essay was selected from every class, published in a book (funded by NBC Television and WRC TV) and distributed to the entire student body. According to Seikaly, the essays are important because "students are making public statements about their values relating to drugs. They are letting other adolescents know that there is acceptance for saying 'no' to drugs."

Elaine Seikaly earns recognition from Montgomery Education Connection.

Seikaly has established and maintained the school's on-going relationship with IBM and Signet Bank through the Adopt-a-School program and with the media center and science department of Montgomery College. She has used the Connection Resource Bank, the Public Health Service and the National Institutes of Health extensively to provide mentors for students working on science fair projects as well as for conference speakers.

The awards committee recognized that much of what Seikaly does falls within the responsibilities of her job, but she "has extended herself far beyond her formal job description." ∷

At College Park Airport student operates a flight simulator.

NASA expert

(continued from page 6)

As a grand finale, Poff showed the class how to make a "ring-winged" aircraft out of a piece a notebook paper. He explained that the idea for ring-winged airplanes came from a high school student who thought of the idea as part of a science project. NASA is now developing this type of aircraft. Paper was creased, folded and taped. A blizzard of white ring-winged sail planes engulfed the classroom as students delightedly launched their crafts from chairs, desks and every corner of the classroom. There was no question that Poff had given Knoller's class a "feeling" of flight. ∷

Electricity

(continued from page 3)

radio (70 watts), a color TV (240 watts), a dishwasher (750 watts). The radio tricked everyone.

Moving from the practical to the theoretical, Bennett led his audience into the future. "Let's talk about more abstract questions. We're going to have to generate some form of energy in the future. How will we generate energy in space?" Answers flew from every corner. "With superconductors." "In the future you might use real weak stars and drain energy from them." "What about using anti-matter, using a small piece of a black hole?" Bennett responded, "How will you bring a piece of a black hole here?" Theory followed theory as Yankees and Newts stretched their imaginations.

Finally Bennett asked the class how they felt about nuclear energy. Everyone agreed it is a great way to generate electricity. In response to a question about how nuclear waste products should be handled, students suggested that they be put in the Arctic Ocean or buried in a salt mine. A discussion of environmental impact followed.

Bennett and the class became so involved with the questions, theories and facts that they forgot to keep score. At hour's end it was obvious that all participants were winners. ⁘

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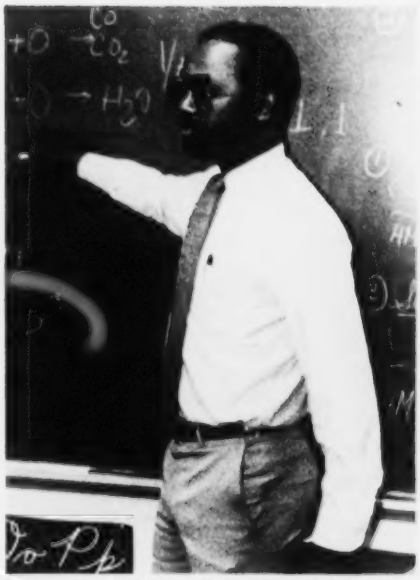

Bennett explains combustion chemistry.

Continue to send nominations for Montgomery Education Connection's

TEACHER OF THE MONTH AWARD

(One nomination entitles nominee to consideration for the entire year.)

For more information call Sally Keeler, 279-3391.

Simulation

(continued from page 2)

burse. With superconductors we'll be able to get rid of a lot of the heat of resistance."

The international use of simulation became clear when the guide explained that one simulator would be sent to Tennessee, and another was being crated for transport to Beijing, China.

Leaving the cavernous and noisy testing facility for the quiet of a conference room, the students were invited to ask questions. "How much does a simulator cost?" ("Ten to twenty million dollars each.") "How long does it take to build one?" ("A little less than three years from the day the contract is signed until the day the customer accepts it.") "How do you ship something so big?" ("The one going to China will be disassembled, packed in wooden boxes, and flown to China.") "Do you use a lot of disks?" ("We use six to seven 300 megabyte disks on the smallest of our simulators and 13 such disks on our largest.") "How long does it take to design a simulator?" ("It takes 28-36 months. The engineer must follow four basic steps. 1. Decide what needs to be done. 2. Decide what approach to use. 3. Do it. 4. Test it.")

Turning once again to the "art" of science, one of the Singer engineers explained that as many as 10 engineers may be working on designing parts of a single simulator. "You might consider us as puzzle makers. We design all the pieces and when it's all done and all the parts fit, we've made a pretty picture." ⁘

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Paint Branch High School
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384-2300

...Of Interest

Frankie Engelking, education specialist, explains to 8th graders at Julius West IS how drugs and alcohol affect the brain.

Teens get warning about drug risks

Frankie Engelking scares kids. That's her job. She is a community education specialist for the Center for Behavioral Medicine in Rockville, and she lectures on the dangers of alcohol and drug abuse.

Engelking visited Barbara Babuska's 8th grade family life class at Julius West IS to share some basic facts about teenagers and substance abuse.

FACT: "Each of you is going to have to make a choice about using alcohol and drugs. You need information about drugs; you need to know the rules and regulations, the signs and warning signs."

FACT: "When the drinking age was lowered from 21 to 18, the number of teenage deaths increased, and the number of teenage alcoholics went up to three million."

FACT: "Between the ages of 10 and 12, if you begin experimenting with alcohol, just enough to change the way you feel, your chances of becoming addicted are 90—98 percent."

FACT: "Between the ages of 13 to 15 if you drink once a week or once every 2 weeks your chances of becoming addicted are 80 to 89 percent. As you get older, the same amount of drinking will put you less at risk because of the way your body metabolizes alcohol. For ages 16 to 18, the risk of addiction is 60 to 70 percent; for ages 19 to 21, the risk is 40 to 59 percent; after age 22, 20 percent of those who drink enough to change the way they feel will become addicted to alcohol."

FACT: "Alcoholics Anonymous has a saying, 'It takes 10-15 years for an adult to become an alcoholic.' It will take 10-15 months for a teenager to become addicted, drinking as little as once a week. It will take 10—15 days for a child under the age of 10 to become dependent on alcohol."

FACT: "You are at greater risk of addiction if any blood relative is chemically dependent."

FACT: "Some people have an allergy to alcohol and can become addicted after the first drink."

After delivering her facts, Engelking began a dialog with the class about the physiology of addiction, asking the class, "How long are you addicted?"

Class: "One or two years?"

Engelking: "Forever. Addiction is a one way gate. Once you pass through that door, you can never go back. You are addicted for the rest of your life.

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Harold Banks, Smithsonian geologist, reveals the history of rocks.

Geologist reads old rocks

Harold Banks, a geologist working at the Smithsonian Institution, visited Caroline Augustine's 75 fifth graders at Wheaton Woods ES, and explained that he began his career by looking into a cigar box.

"When I was young, my dad took me into the basement and opened a cigar box that had belonged to my grandfather. The box was full of lots of pretty minerals. I became intrigued. There was an amateur hobbyist in my neighborhood who helped me identify them and I began a collection."

"Why collect? The story of the earth is told in the rocks. They give us clues as to the earth's history of weathering, erosion, volcanoes. What is the earth's crust made of? Rocks." Geologists like to read the rocks.

"Where can you collect minerals? Everywhere, in your backyard, in the school yard, in rock quarries (accompanied by an adult). We geologists are so interested in rocks that we have to drive very carefully because we are always looking for interesting specimens."

Banks deposited small boxes of minerals and "analytical tools" on each cluster of desks. He explained that the penny in each box was a tool for analyzing the rocks; you can scratch the rock with it to test for "hardness."

Before embarking on the actual experiments, Banks taught the class how to identify an unknown object by examining its "properties," the characteristics you can see. Using five students whose names he listed in a chart on the board, Banks demonstrated that by classifying them by height, eye color and hair color, he was able to identify them by name even though he had never met any of them.

He proceeded to lead the class through an examination of the physical properties of the minerals they had before them, examining color, luster, hardness and streak, the result of rubbing a mineral across a white porcelain plate to see the true color. As minerals spilled out of boxes onto the desks, sorting sounds mingled with excited voices as students examined, scratched and divided their rocks.

Banks said that the identification of a unique property or combinations of properties helps identify an unknown mineral. He illustrated this process by using a "determinative table," similar to the chart used in identifying the five female students in his previous exer-

(continued on page 4)

John Gamage, teacher of the month.

Gamage wins MEC recognition

The Montgomery Education Connection (MEC) has selected John Gamage, business management teacher at Seneca Valley HS, as teacher of the month for January.

According to Richard Dumais, principal of Seneca Valley who nominated him, Gamage has created many opportunities for his students to learn "firsthand about the realities of the business world."

As coordinator of the Classroom on the Mall program at Wheaton Plaza, Gamage arranged for students from throughout Montgomery County to attend classes at facilities provided by Woodward and Lothrop and Montgomery Ward. The students were taught accounting and merchandizing skills to prepare them to manage a flower kiosk at the mall.

As a member of the Germantown Rotary Club, Gamage started an Interact Club for students who want to serve the school and community. Meeting every Tuesday during open lunch, the club has grown from 35 to 85 members in two years. Members of the club meet with business people at both school and business locations. Two students are selected each year to attend the World Affairs Conference at George Mason University, a week-long conference for students to learn about world affairs from experts in government. Speakers from the Department of State and the Pentagon lecture, and participants are invited to visit many government offices.

Gamage arranges for entrepreneurs to visit his classes on a regular basis, and his students have heard from a variety of self-employed business people: the owner of Sassafras (a clothing store), the owner of Century AMOCO, doc-

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Bees bring entomologist to third grade

Melanie Odlum, entomologist with the University of Maryland's cooperative extension service, brought hundreds of visitors with her when she visited Sandi Shapiro's third grade class at Bradley Hills ES.

The buzzing wooden "briefcase" she carried contained a colony of bees intent upon creating a hive and unaware of the excitement they caused in the classroom. Several wayward worker bees even managed to wriggle free to explore the classroom.

Capturing this "teachable moment," Odlum began by observing that, "we have a few visitors with six legs in the room as well as some with two legs. They are attracted to the ceiling lights because they think that they are sunlight. Bees are smart, but they don't know how to think. They just react."

When the flying visitors had been suitably examined, Odlum explained that bees are so important that staff members at the University of Maryland occupy an entire building in studying them. "More has been written about bees than about any animal except humans."

Odlum continued and explained how bees help humans and plant life. "They help flowers reproduce by pollinating when flower pollen sticks to their bodies and hairy legs. Without bees we wouldn't have fruits, onions, garlic, carrots, broccoli. Bees enable us to get seeds as well as fruits."

Noting that bees were not native to this country but were brought here from Europe, Odlum explained that they were imported to produce honey and wax, which she let the students taste and examine.

The class explored bee anatomy using a large cut-away model. Odlum explained that a bee's tongue has to be long enough to reach into the flower to the nectar and it is as long as the bee's leg.

A discussion of bee sociology followed. Odlum explained the organization and maintenance of the hive and discussed the different kinds of bees, the worker, the drone and the queen, explaining the responsibilities of each.

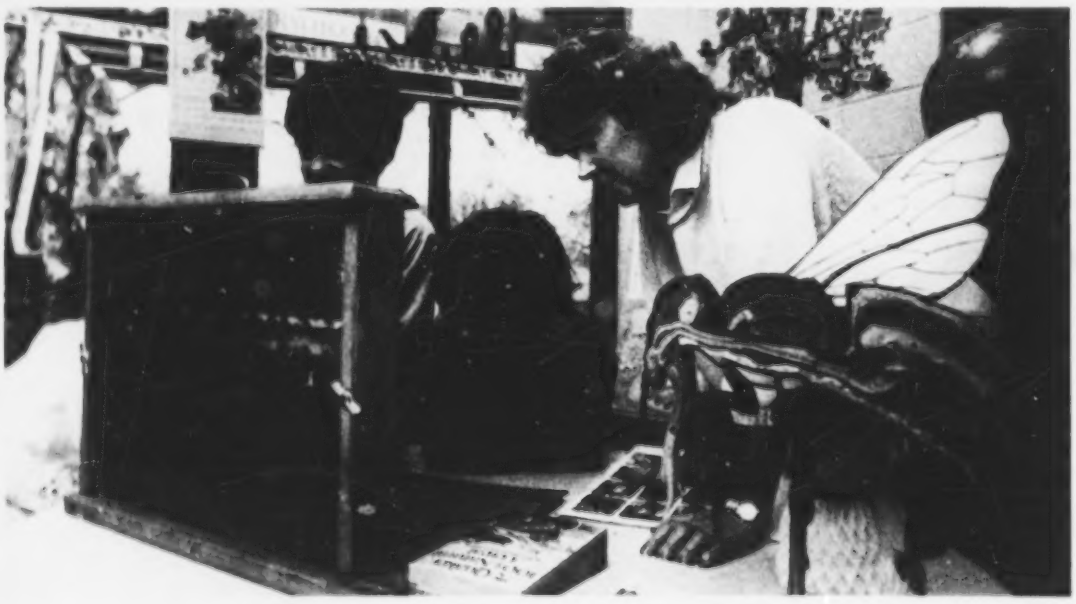
"The workers, who are all female, secrete wax and build and maintain the comb. They emerge fully grown and begin to work before they are a minute old. They know by instinct what they must do and they work for the rest of their lives. Bees don't sleep. They only live about six weeks in summer. A hive has as many as 60,000 bees in it, and workers have to feed the larvae once every minute, 60 times an hour. They literally work themselves to death.

"The drones are male bees who don't do any work. They rely on the workers (who even feed them). Their job is to mate with the queen bee in the spring. Then they are pushed out of the hive and die.

"The queen bee is the mother of the entire hive. When the queen gets old, the workers select several larvae and feed them special food called "royal jelly." Those larvae fed this special diet will emerge as queen bees, battle for supremacy, and the survivor will become the new mother of the hive.

Explaining bee behavior, Odlum pointed out that bees communicate by touching antennae and by emitting a smell. She posed a problem for the class. "Suppose you left a large dish of honey in the yard and a bee found it. How would the bee tell the rest of the hive?" One well-informed student explained that the bee would return to the hive and dance and turn in a pattern that would communicate the location of the honey. Odlum said that in finding their way in the world, bees take into consideration the rotation of the earth and the position of the sun.

As Odlum concluded she invited students to take a closer look at the hive. And after seeing, talking, listening, tasting, smelling and thinking about bees, Sandi Shapiro's 24 third graders understood many more of the characteristics by which animals are classified. ■



Melanie Odlum explains the activities of a hive as students look for the queen bee.

Drugs and alcohol

(continued from page 1)

You won't ever be able to drink wine at Christmas dinner, champagne at your wedding, a toast on New Year's eve. What have you observed about people who drink?"

Class: "They get dizzy, violent, act wild, yell, do crazy things."

Engelking: "Why do they do these things? If alcohol is a depressant that slows you down, why do people who drink too much become so active? The first thing alcohol depresses is the brain. How long does it take alcohol to reach the brain?"

Class: "An hour?"

Engelking: "Sixty seconds! When you sip a drink it goes through the stomach and into the blood in 60 seconds. What part of the brain does alcohol control first?"

Class: "Motor skills?" "Reflexes?"

Engelking: "No. It controls thinking, judgement, decision making. At a party on a Saturday night, what decisions are you going to have to make? How much am I going to drink? How am I going to get home? Am I going to become involved in sex? How loud am I going to be? How aggressive? How angry? Am I going to take drugs? If your decision-making power is depressed, your choices will be different than if you were making the same decisions today, here, now."

She ended her presentation with a sobering statistic, warning her audience that "younger kids are living longer; so are older people. Your age group (13-19) is the only one for which the death rate is going up." ∎∎

Young artists bring bees to life.

Teacher of month

(continued from page 2)

tors, dentists, lawyers, accountants and the principal of the school. According to Gamage, "the only difference between a store owner and a lawyer is the product or service they sell."

When asked how students reacted to thinking of Principal Dumais as a businessman, Gamage said, "He is basically a manager. When he talked about how much money a school spends they were amazed."

Field trips to such places as McDonald's regional corporate headquarters have given students another perspective on managing a business.

Each business management student is assigned the task of creating a business on paper. This year's assignment was to establish a Christmas tree lot. Students were asked to consider such things as location, traffic and parking, visibility and access, rent, items to sell, necessary licenses and the hours of operation. Parts of this assignment required information from the business community and from state and local governments.

According to Dumais, Gamage has recruited "young entrepreneurs to show our students that it can be done and they can do it by hard work."

Next semester Gamage is planning to start a new club called Young Entrepreneurs for students who have some type of business of their own or want to begin one. "We'll meet once or twice a month initially. I want students to examine self-employment as an alternative to a part time job. This way they can set their own hours and rates."

Gamage not only has invited his students to learn about the business world, he has taught them how to become part of it. ∎∎

Rocks and minerals

(continued from page 2)

cise. Using this table, students were able to discover that the white, soft, non-metallic stone each had was talc, the softest mineral.

Summarizing the groups of rocks (igneous, metamorphic and sedimentary), Banks confided that "sedimentary are the fun rocks to work with because they contain fossils." Holding up a large piece of rock, he continued, "This piece of shale is mud rock formed 200 million years ago. These tracks, found in New Haven, CT, are dinosaur tracks."

Several students had brought rocks for Banks to identify. Encouraging any future geologists, he told the class that the Smithsonian "curates" more than half a million specimens of minerals. "That means we assemble, maintain and make available for research specimens that we feel are important to mankind." ∎∎

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Connecticut Resource Bank

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...Of Interest

Irene Spector has found a unique way to warn about the dangers of smoking.

Why clowns don't smoke

Irene Spector taught French, Spanish and Latin in Montgomery County for 20 years before retiring to become "Peppi" the clown. Along with her husband, also a clown named "Spec," she visited four first and second grade classes at Bethesda ES to explain why clowns don't smoke.

As speakers for the American Lung Association, Peppi and Spec have performed before many young audiences using fairy tales and sports figures to make their point: Don't Smoke.

Spector displayed posters of instantly recognizable athletes and asked why these famous people were so good in their respective sports. Answers varied from "because he can jump high," to "because she can run fast." Spector collected suggestions until she found the one she had been seeking, "because they don't smoke." Using this answer as a launching pad, she explained how smoking adversely affects different parts of the body, the heart, the lungs, the circulation.

Sensitive to the issue of parents who smoke, Spector offered suggestions about how to encourage "people we love" to stop smoking without offending them.

She ended her program by giving each student a coloring book and stickers provided by the American Lung Association, and a "high five" that made her hand squeak.

Nuclear engineer empowers class

Nuclear energy implies both war and peace. When Peter Tam, project manager for the Beaver Valley nuclear power plant outside of Pittsburgh, visited Rockview ES, he concentrated on the peaceful uses of nuclear fission.

An engineer with the Nuclear Regulatory Commission (NRC), Tam is one of 100 people who are responsible for overseeing the safety at the nuclear power plants spread across the country.

Speaking to 21 third, fourth and fifth graders who had selected this as a subject for study, Tam piqued their curiosity. "I have added a small amount of harmless radioactivity to this room. See if you can find it." A geiger counter led students to the small disk he had hidden under one of the books in the media center.

Tam used the geiger counter to demonstrate that there is constant harmless radiation bombarding us as the earth moves through space. He explained that the geiger counter is only one of many instruments that measure the kind of radiation that cannot be seen, such as x-ray, heat and microwave.

How can something that has not ever been seen be understood? Tam turned to the chalkboard. "We have not seen some things in nature, but we know that they exist. Drawing atoms on the board, he compared alpha, beta and gamma radiation.

Although a picture may be worth a hundred words, a demonstration has even greater power. Illustrating how atoms can be split, Tam moved to a three dimensional demonstration of nuclear fission. He had taped five inflated balloons to books on a table. "I have five nuclei of uranium atoms here." Pretending to become a single neutron travelling through space, he popped the first balloon, the parts of which

(continued on page 2)

The best way to compare plants and animals is to see them "up close and personal."

Genetic research is the splice of life

James Saunders, biochemist with the US Department of Agriculture, brought a lot to his lecture at Piney Branch ES: plants, worms, caterpillars, corks, videotapes, and an impressive series of undergraduate and graduate degrees in such areas as zoology, chemistry, micro and molecular biology and genetics.

Asked by Sherry McGinn to speak to 77 fifth graders about the differences between plants and animals, Saunders began by drawing a plant cell and an animal cell on the chalkboard and comparing them. "Animals have an internal structure to hold them up but when one of their cells dies, it just collapses. Plants don't have a similar internal structure, but their cells have thick walls that give them support. So when a plant cell dies, it keeps the wall."

Turning to live specimens, Saunders lifted a nearby plant. "This plant doesn't move, it just sits here. Only its roots and leaves can move. It manufactures its own food. However, he said, "Animals move to find food and reproduce."

Since Saunders is a researcher in plant genetics, he also showed students how plants naturally reproduce through a time-lapse videotape.

Then he explained his work as a genetic engineer. "There is an artificial way for scientists to create a new kind of plant. I do this kind of work by removing the cell walls from two different kinds of plant cells and shocking them electrically causing them to fuse into a unique new plant." Using a second time-lapse video, Saunders showed how a tomato cell and a potato cell can be made to fuse.

Asked by the class if he could fuse a plant cell with an animal cell, Saunders explained that technology made this possible, but laws prevented such experiments. Explaining the restrictions imposed upon genetic engineers, he said that technology is moving so quickly that the law is playing catch-up. "One of the dangers of technology today is that plants have many different chemicals in them and scientists have to be cautious about creating something potentially harmful."

Saunders demonstrates cell fusion.

Saunders shared his most recent research, explaining that he has successfully bred a unique plant, combining two kinds of potatoes by splicing the genes of a large potato that rots quickly with the genes of a small potato that spoils more slowly. The goal is to create a plant that will produce medium sized potatoes that will remain edible longer. Saunders has succeeded in creating the plant, but it has yet to produce any potatoes.

Since improved production of food is of critical interest all over the world, Saunders used his research as an example of how important it is for scientists to share their discoveries. "The genetic engineering I'm doing is a very new science. It has the potential for making great improvements; curing diseases, creating new foods, improving production of medicines." Research binds the world's scientific community, he explained. "My research in Maryland may be read and used thousands of miles away to create a new kind of rice to feed a starving population." ::

Nuclear reactor

(continued from page 1)

flew off in every direction. Tam proceeded to pop each balloon, advising his audience to watch how the pieces flew apart and hit each other. "When a neutron hits an atom, the atom explodes, hitting other atoms and causing a domino effect."

Anchoring this concept to experience, Tam explained that 40 years ago, this example of fission ended World War II when the United States exploded the first atomic bomb. Tam had brought a large poster of the Beaver Valley nuclear power plant and he explained that after the war, "the president decided to try to find peaceful uses for nuclear energy."

After explaining how a nuclear reactor works and drawing a schematic on

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Vaccaro taps resources

Resource Bank volunteer Dr. Michael Vaccaro, a retired metallurgical engineer and former associate deputy director of Goddard Space Center, has many of the characteristics of the desk he sits at when working at Montgomery Blair HS. His desk is a strong, solid, practical oak teacher's desk that has endured the rigors of a full working life and still maintains its charm and purpose.

Vaccaro has volunteered to help match resources in the physical sciences with the needs of Montgomery County's teachers and students. On Tuesdays, Wednesdays and Thursdays he can be found tucked into the chemistry lab at Blair working on a volunteer mentor program for the magnet school. He works by phone with Judy Messitte, Resource Bank coordinator, to reach into the scientific community and tap resources otherwise inaccessible to MCPS.

The broad range of his training and working life enables Vaccaro to clarify the need and contact the types of resources for what are sometimes unusual scientific inquiries such as the physics of amusement park rides or how sound waves act in different gases. As associate deputy director of Goddard, he was responsible for the business management of the space center. As director of executive development at the National Aeronautic and Space Administration (NASA) he was responsible for identifying and developing replacement candidates for the top 100 positions in the NASA organization. Retired from federal service in 1980, Vaccaro became professor of graduate studies at the University of Maryland where he taught students to develop and identify skills associated with managing large scale research and development projects. Since his

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Michael Vaccaro is a natural resource.

Students experiment with mixing unmixables

Everyone knows that oil and water don't mix. Not everyone knows why. Ann Benbow and Martha Turckes, from the American Chemical Society, helped Katherine Driscoll's 4th graders at Luxmanor ES find out.

Benbow focused on liquids, using the combination of oil and water as an example, explaining that in order for the oil to disperse in the water, an emulsifier is required. "In some salad dressings, you have to add mustard to help keep the droplets of oil dispersed in the vinegar."

Students were paired and given materials for an experiment: saucers of milk, one skimmed and the other cream, three different kinds of food color, a saucer of liquid detergent and a cotton swab.

Each pair was instructed to place a drop of each different color into one of the milk samples and record what they saw. They were asked to predict what would happen when they put color into the remaining milk sample and then do it. "Will color do the same thing in skimmed milk as in heavy cream?" Benbow asked. Everyone peered into their saucers to find out.

"Now we're going to mix the unmixables," Benbow explained. "The colors did not mix at all in the heavy cream. We need an emulsifier to create a dispersion. Take a cotton swab and dip it in the liquid detergent. Then just touch the swab to a drop of color. What happens?"

Exclamations of surprise punctuated the silence as drop after drop of color burst into the surrounding white of the heavy cream. Driscoll captured the excitement when she observed that "the swab is sort of like a magic wand, isn't it?"

Modeling sound scientific procedures, Benbow helped the class record their observations.

Students at Luxmanor ES create a dispersion using milk, food color and detergent.

Ann Benbow describes chemical reaction.

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Using nuclear energy for peaceful purposes

(continued from page 2)

the board, Tam asked students to locate the reactor in the photograph. Everyone pointed to the familiar inverted funnels that rose in the air. Tam pointed to the small rounded containment dome that comprises the reactor's core. "This reactor has enough power to supply Pittsburgh with all the electricity it needs for two years."

Students had many questions about the possibility of a nuclear accident. Tam answered the questions candidly. "This is an industrial plant and plants have accidents. There are many people who are responsible for thinking about how accidents might happen and for designing the plant to make such accidents unlikely. Reactors cannot explode like an atomic bomb. This chair has all the atoms that can be found in nitroglycerine. However, it won't explode because the atoms are not arranged to become nitroglycerine."

"But," a student persisted, "what happens if one of those pipes carrying hot water or steam bursts?" Tam reiterated some of the precautions built into the design of the plant. "The pipe is raised off the ground to prevent anything from hitting it, and it is made of special materials that will resist rupture. We protect ourselves by eliminating the causes of accidents. We can never say that there are no risks. Living involves risk. We try to minimize the possible consequences by being careful."

Peter Tam illustrates the layout of a nulcear power plant like the Beaver Valley reactor.

Vaccaro is resource

(continued from page 3)

retirement from that job in 1986 he has been volunteer technical resources coordinator for both Blair and the Resource Bank.

Asked what drew him to the school system, Vaccaro explained that he's "always been interested in the problem of bridging the gap between education and the world of work. Twelve years ago, with the Office of Education, I developed a series of math supplements providing algebra, geometry and trigonometry teachers with problems from space where those principles were applied. I try to get Montgomery County's high technology people to be aware of our need for mentors. How do we get people's attention? How do we make them understand that their time will be well spent helping this particular student? By dialogue. We have to make a need so specific that mentors or volunteers can identify with the request. We have to obtain enough information from the user that the provider will know what is expected. Finding resources is a process, not a single activity. It's a creative process."

That Vaccaro enjoys his work becomes obvious as he juggles an interview with the constant ringing of his phone and interruptions by both staff and students. A teacher and student approach his desk with a request for an "acoustical physicist" to act as mentor in an examination of how sound waves react in different gases. Vaccaro turns to the student, hands her a pad of paper and instructs her: "Say in three or four lines what you want from the person you want to talk with. Don't worry about fancy words. Just say what you want and I'll meet with you at 2:15 on Thursday. In the meantime, I'll spend time calling some folks to talk with you about your project."

In the chaos of the chemistry lab at Blair there is an island of intensity around Vaccaro. His experience and obvious commitment to science and education have benefited students, teachers and the scientific community.

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Connection
Resource Bank

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...Of Interest

MCPS photographer Bill Mills explains his job to Piney Branch class.

Getting down to business

If a picture is worth a thousand words, Montgomery County's school photographer Bill Mills has written volumes.

At Piney Branch ES, Mills took his turn on the other side of the lens and talked about his MCPS career with Carol Hylton's 3rd and 4th grade "Thinking Opportunities for Kids" class as they began an in-depth study about making career choices.

Mills' early interest in art supported Hylton's belief that career skills and interests can emerge at a very young age. "When I was young," Mills explained, "I wanted to be a cartoonist. My parents encouraged my interest in photography." After studying business administration and seeing the world as a dishwasher on a ship in the Pacific, Mills earned bachelor's and master's degrees in fine arts and taught photography. "I decided to pick a career doing something I really enjoyed." Mills, who takes, develops and catalogues practically all the photographs used in MCPS publications, says that photography gives him a chance to "show appreciation of the life around me."

(continued on page 3)

Matchmaker best in nation

Some matches are made in heaven, but more than 700 have been made by Judith Messitte, coordinator of the Connection Resource Bank, this year's Tupperware Apple Tree Award winner for exceptional school volunteer programs.

Ceremonies were held at the annual conference of the National School Volunteer Program (NSVP) in Long Beach, CA, Feb. 8. Sally Jackson, MCPS coordinator of volunteer services, and Messitte accepted the award on behalf of the school system and the Montgomery Education Connection, a nonprofit foundation of business leaders that developed the bank for MCPS.

The Montgomery Education Connection (MEC), a school-business partnership formed by local business leaders in 1984, developed the computerized data base of more than 1,500 volunteer experts in science and mathematics and continues to support its growth. Since its inception, the Resource Bank has provided direct services to more than 20,000 MCPS students.

Messitte noted that "it would be impossible to place a dollar value on the thousands of hours students are spending with these experts. There's a message in their enthusiasm and commitment. 'Be the best that you can be and then share what you know.'"

At the awards ceremony, NSVP Executive Director Daniel Merenda noted that, "These programs serve as models for schools around the country. We are proud to recognize their accomplishments in bringing schools and communities closer together through the creative work of volunteers."

The Apple Tree award was represented to the Board of Education and the Montgomery Education Con-

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Bridget Young lectures at Whitman

Accounting for dollars and sense

Things have changed since the Sun Oil Co. submitted its one page income tax return in 1913, and Bridget Young, public accountant with the firm of Kasnett, Levine and Pasternack, explained some of those to Lynn Hildebrand's accounting class at Walt Whitman HS.

"How many of you think you have to be good at math to do accounting? You don't have to be good at math. We accountants now have calculators attached to our right arms. Fifty years ago a neighbor who is an accountant applied for a job. The company gave all applicants the phone book and made them add all of the numbers on one page. The one who correctly added them the fastest got the job. Today accounting requires common sense, logic and a love and knowledge of details. The tax laws don't always follow common sense, so you also need to learn the law.

"As an accountant, you can work in industry or in public accounting. In industry you usually become an expert in one area. You can 'job cost' things, allocating overhead, deciding what costs go with which product. You can act as comptroller, managing the assets of the company. You can become an auditor, letting investors know that what the company says about its money management is fair. Finally, you can work in tax preparation, reporting a company's earnings to the government."

Public accounting, belonging to a private firm and doing work for many businesses, offers many different opportunities. In contrast to working in industry where accountants deal with the fiscal affairs of one organization, much of the work public accountants do involves preparing tax returns for a number of individuals and businesses.

Young compared the requirements and rewards of both types of accounting. "In industry, MBA's are important. In public accounting, you have to be a certified public accountant, a CPA."

She contrasted the salary scales. "In a major industrial company you can begin low, $18,000 a year, and rise quickly in five years to $40,000. Public accountants charge by the hour. Actual earnings depend on the complexity of the work."

Turning to the pleasures of the job, Young explained that she enjoys the "variety and the sense I get about what's going on out there. I see so many different things all the time. On individual tax returns you get to see how people manage their lives. A man earning $100,000 a year will come in not having saved a cent. At times I have to be a detective. I have one client who is allergic to keeping records and every year it takes me a week to file his return. I have to try and figure out what he did and why. I have other clients who make me explain in detail why I changed one number on their returns."

Young explained that the intellectual challenges change continuously. "One moment I'll advise doctors on investments and the next moment I'll advise a sewer company about setting up a pension plan. We have one client with a 145 page tax return. Things have gotten immensely more complicated since Sun Oil's one page return. I enjoy the closure you get—you do a job, it's finished and you go away."

Touching briefly on the future of accounting, Young observed that "in certain parts of the country you can key all your tax information into computers and send it electronically to the Internal Revenue Service. Perhaps some day the IRS will file your tax returns for you using their records. ∷

Know Resource-full Teachers?

Nominate them for the TEACHER OF THE MONTH AWARD!

The Montgomery Education Connection wants to recognize and reward teachers who show creative use of community resources by financing a day of leave to visit a business, and awarding an honorarium of $100.

One nomination entitles nominee to consideration for the entire year. Peer and self-nominations are accepted.

Forms are available in all schools or call Sally Keeler, 279-3391 for more information.

Accounting student learns about job.

Spencer Bartley, of Southland Corp., teaches students the importance of self-confidence.

Southland recruiter challenges students to 'believe in yourself'

When Spencer Bartley, division recruiter for the Southland Corporation, tells basic skills students they can succeed if they believe in themselves, he speaks from experience.

At Wood JHS, Bartley met with 22 basic skills math students and shared his story. "When I was in school, I used to stutter and had trouble understanding and remembering things. My IQ was so low you needed a flashlight to find it. They used to call me 'dummy.' The school told my grandfather that I had a problem. My grandfather told the school to look again. He believed in me. He taught me to believe in myself."

Bartley is committed to nurturing students who are struggling academically. "Success has nothing to do with age. You can have trouble remembering and still be successful. You don't have to be a good speller to be successful. Math? You can handle it. And even if you can't, you can be a success." He is his own best example. Bartley began working for Southland by sweeping the parking lot of a Seven Eleven store.

Mesmerizing his audience with stories about growing up "dumb," in a poor section of Chicago, Bartley encourages them. "The minority group I want you to belong to has nothing to do with the color of your skin. We're the 'make it happen group.'" Walking among the students, Bartley made extraordinary things happen. People laughed, blushed, shook his hand and listened intently. Preaching the gospel of "PMA" (positive mental attitude), he entertained, encouraged and enlightened at the same time. His topic was mathematics but his message was self-esteem. ⁘

Photographer

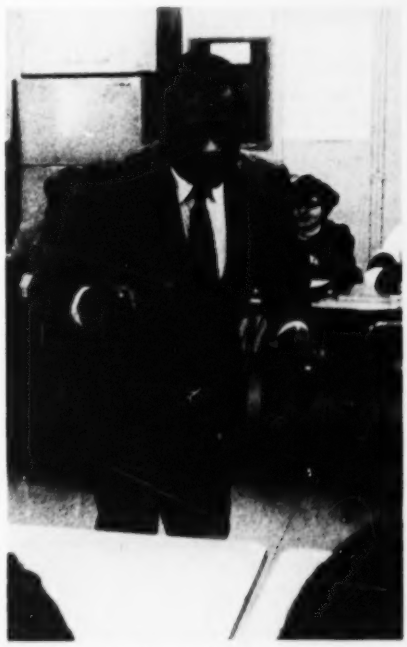
(continued from page 1)

With a well-worn black camera bag slung across his shoulder and several cameras hanging from his neck, Mills fielded questions about his job. "One of the benefits of my work is that I get to go home every night. I have friends who have to travel for months at a time, and I enjoy being with my family as much as possible." Asked if he photographs his children much, Mills responded, "I'd rather play ball with them than take pictures of them playing."

He said he enjoys the constant change of environment involved in his work, going out to "shoot" pictures all over Montgomery County, developing them in his darkroom, and working with the graphics department to catalog the thousands of photographs.

Responding to a question about his casual dress, Mills demonstrated why he chooses not to wear a business suit. Stretching out on the floor and aiming his camera up at a student, he explained the importance of feeling "free to move, to climb on chairs and stretch out on the ground."

Explaining his philosophy of photography, Mills talked about capturing the best moment on film, the lively expression or gesture. "Sometimes a great picture will be given to you as a gift." ⁘



Bartley practices what he teaches.

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The Apple Tree Award is presented to MCPS and the Montgomery Education Connection. From left, Fredric Bell, Judy Kramer, James Cronin, Arnold Avant, Judy Messitte, Sally Keeler, Sally Jackson, Daniel Merenda, William Jones, Sharon DiFonzo, Jean Sutton, Harry Pitt and Blair Ewing.

Bank recognized

(continued from page 1)

nection by Merenda at the March 3rd meeting of the Board of Education. Connection President, William H. Jones, vice president of PEPCO, Fredric J. Bell, senior vice president of W. Bell & Company, and Jean Sutton, group supervisor of computer systems and facilities for Vitro Corporation accepted the award on behalf of the Connection. Bell and Sutton serve as co-chairmen of the Resource Bank Committee. ■■

Messitte (right) makes data base match.

In the areas of science and math, the CONNECTION RESOURCE BANK can:

- **Get speakers for your classes**
- **Get mentors for your students**
- **Locate tutors**
- **Arrange field trips and internships**

More than 1,500 volunteer experts are in the data base.

More than 20,000 MCPS students have already received direct services.

To reserve a resource, call Judy Messitte at 762-6192.

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

Connection Resource Bank

...Of Interest

Harry Pitt, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

Published by the Montgomery County Public Schools for teachers monthly, October through May, through an Excellence in Education award to Paint Branch High School from the U.S. Department of Education and funds from the Montgomery Education Connection, Inc.

Paint Branch High School
14121 Old Columbia Pike
Burtonsville, Maryland 20866

...Of Interest

Naturalist Glenn Cumings completes lecture about snakes with a hands-on opportunity.

Snakes: seeing is believing

He slowly undid the tight knot at the top of the dangling pillow case. Reaching in carefully he withdrew a 5-foot-long, reddish brown corn snake that coiled around his wrist like an ancient bracelet.

To Glenn Cumings, park naturalist at the Maydale Nature Center in Silver Spring, snakes are fascinating and beautiful. Speaking to 22 4th, 5th and 6th graders at Highland View ES as part of their science symposium, Cumings shared his life-long love of snakes.

A collector since the age of 5, Cumings' presentation included a slide show of many of the 117 varieties of snakes found in the United States. Sharing facts and myths alike, he entertained his audience with the adventures of his many years of snake-catching and keeping. In the tradition of an old-time storyteller, he told about the pet snake that escaped into his car while he was driving and managed to wriggle out of the door and return to its natural home.

A veritable encyclopedia of information, Cumings discussed snake physiology, habits and habitats. Many students were interested in the dangers of snake bites and he explained how to identify poisonous snakes, how they poison their prey and how to treat a snake bite. According to Cumings, all snakes are beneficial to the environment and none should ever be killed "unless directly threatening a human being."

At the conclusion of the slide show, an air of expectation filled the classroom as Cumings reached for the 3

(continued on page 4)

Expo experts

In a crescendo that began building slowly in October and peaked in March, Dan Lerner, interdisciplinary science resource teacher at Highland View ES, orchestrated the 4th Annual Science Expo involving 229 exhibitors from grades K-6.

Starting the school year by whetting student interest in science, Lerner worked with the Resource Bank and invited a series of 20 scientists to visit the school and share their expertise. Speakers complemented the subject areas in the general elementary science curriculum, such as matter, energy, living things, environmental science and laboratory skills.

Students who were interested in expansion and contraction were invited to see a physicist from the National Bureau of Standards demonstrate cryogenics and the properties of supercooled liquids. Students interested in artificial intelligence chose to watch a systems engineer from Eaton Corporation create a living computer.

To stimulate student participation in the noncompetitive exhibition, Lerner visited each class with a slide presentation showing many of the projects from last year's symposium at which every participant received a ribbon and certificate. The reward lay in presenting their projects to their parents, peers and members of the Board of Education.

Fun with fossils. See story on page 3.

As "processor" receives the data from "control" (Hillman), "input," "memory" and "output" await their turn to convert data into information as students simulate a computer.

Humans being computers

When David Hillman, systems engineer working with artificial intelligence for Eaton Corporation, told 2nd and 3rd graders at Highland View ES that they were going to learn about computers, he didn't tell them that they were going to become one.

Defining a computer as "a machine that does things with something called data," Hillman proceeded to pull the explanation of the terms from the students themselves.

"If data is anything that's a letter or a number, gimme data!" He got what he asked for and the chalkboard was covered with random numbers and letters. "If I put a 'D,' an 'A,' a 'V,' an 'I' and a 'D' on the board, what've I got?" "David!" was the shouted reply. "Right! If I string all these pieces of data together, now I have a word. I have more than just data. I have information. 'David,' means me! That's what a computer does, it takes in data and puts out information."

Referring to computers as "downright stupid, but able to do some very simple things very very quickly," Hillman illustrated how quickly a computer can add and subtract.

Drawing a computer on the board, Hillman labeled and defined the five parts in terms easily understood by his audience. "Memory is like an imaginary piece of paper that will remember letters and numbers. The disk drive is the computer's memory. Input is the keyboard on which you type the data. Output is the screen on which you see the information. The processor is the part of the computer that works with the data. The program disk is the control, the boss, and you control the program disk."

Having established carefully a foundation of common understanding, Hillman built a computer out of volunteers. Each student wore a sign signifying his or her function: data, input, memory, processor, output.

Like the conductor of an orchestra, Hillman told data to whisper her number to input. Input whispered it to memory. Memory wrote it down. Processor got the first number from memory, and then a second number. He added the two numbers and told memory. Memory told output what the answer was. High technology was made visual, experiential and real.

When Hillman ended his presentation, a tight group of seven students surrounded him bombarding him with further questions. Dan Lerner, interdisciplinary science specialist at Highland View, watched carefully. "That's what it's all about. Most of the class will absorb what they are interested in. Then you have a group of five or six who crowd around and want to know more. They're the ones who will remember this information years from now." ∎∎

Student learns his role in simulation.

Old rock groups never die

What do Paul McCartney, Ringo Starr, George Harrison and John Lennon have in common with fossils? All are rock "stars."

Passing around fossils preserved in stone, Gladys Fuller was surprised when one 3rd grader showed her the specimen in his hand and announced that, "This is my favorite rock group."

"What group is that?" Fuller responded. Extending his hand to display the insect fossil imbedded in the stone, he replied, "The Beatles!" Fuller laughed appreciatively. The student was holding a beetle-like fossil that was more than 300 million years old.

Fuller, physics instructor at Montgomery College and mineral sciences docent at the Smithsonian Museum, used her private collection to demonstrate the six different ways that fossils are formed. She began by defining fossils as "the remains or traces of life that existed many thousands of years ago."

Ancient animal "hard parts" such as teeth, bones and shells were inspected. Most popular among this group was a large serrated shark's tooth. Passing around the petrified vertebrae of a huge sea animal and a rock-like piece of wood, Fuller explained the process that occurs when something living dies and turns to stone through a series of chemical changes. She had examples of leaf and fish fossils carbonized by millions of years under great pressure. Another variation included those fossils created when plants and animals left the imprints of their bodies in rocks. Now molds and casts can be made of their forms. Traces of life, such as fossilized footprints and tailprints, offered still another record of life on earth millions of years ago. Finally Fuller spoke about fossils preserved in tar pits and glacial ice that included preservation of the soft parts of the specimens as well as the hard parts.

Asked how the age of a fossil can be determined, Fuller discussed the importance of knowing where it was found and examining the layer of earth in which it was discovered.

Citing fossil location as an important "tool" of the archeologist in his or her investigation, Fuller noted that Maryland is one of the few states to have its own state fossil, a shellfish fossil first found within its borders that was not known to exist anywhere else in the world. ∎∎

Know Resource-full Teachers?

Nominate them for the TEACHER OF THE MONTH AWARD!

The Montgomery Education Connection wants to recognize and reward teachers who show creative use of community resources by financing a day of leave to visit a business, and awarding an honorarium of $100.

One nomination entitles nominee to consideration for the entire year. Peer and self-nominations are accepted.

Forms are available in all schools or call Sally Keeler, 279-3391 for more information.

Gladys Fuller, museum docent, shares the "old" with the "new" as 3rd graders at Highland View ES explore the world of fossils.

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Christiansen is teacher of month

The Montgomery Education Connection has selected Stephen Christiansen, Ridgeview JHS science teacher, as April Teacher of the Month based upon his work with the National Bureau of Standards (NBS) to develop and implement the STEP (Science Technology and Enrichment Program) and REAP (Resource Education Awareness Partnership) programs.

These programs were established to utilize Bureau scientists as educational resources. Started as a venture between Ridgeview and NBS to enhance the science and math curriculum, they were expanded to serve all Montgomery County schools.

Christiansen worked with scientists to develop a range of presentations and a schedule, modifying a computer data base program for tracking presenters and presentations.

Because of his familiarity with the resources at NBS, Christiansen was asked by MCPS to arrange for newly hired science and math teachers to tour the facility, meet the scientists and become familiar with the work and research being done there. Working through REAP, he set up a meeting of teachers and scientists.

As a teacher interested in motivating his students to see the applications of science, Christiansen coordinated a school project on crime detection and law enforcement. In connection with a unit on drugs, controlled

Christiansen of Ridgeview JHS selected.

dangerous substances, tobacco and alcohol, he invited police officers and detectives to talk about their roles in preventing and solving crime. Through a series of speakers, students learned about fingerprints (how to take them and read them),and how the study of handwriting can reveal information about the writer. There were lectures about how crimes are detected and how criminals are tracked. Visits to the Federal Bureau of Investigation (FBI) reinforced the uses of science in law enforcement.

Christiansen will receive a $100 check from the Connection and have the opportunity to take a day of administrative leave to visit an area business to increase his knowledge about resources available to the schools. ∷

Studying snakes

(continued from page 1)

pillowcases he had brought with him. "I carry snakes in pillowcases because they can breathe through the cloth and it is soft. You have to tie the knot really tight or a snake will use its head and nose to push through."

As Cumings withdrew each snake, students crowded around to hold and touch it. Selecting the "mellow-natured" corn snake, Cumings allowed several students to drape it over their shoulders where it coiled obligingly around their necks. ∷

Cold-blooded necklace decorates adventuresome student.

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...Of Interest

INVENT AMERICA:

TOK student (above) reacts to an invitation to 'invent as many uses for this paper plate as you can think of (below).'

Inventing is a class act

If necessity is the mother of invention, then Marion Canedo is at least an aunt or cousin. Founder of "The Invention Convention," a Buffalo, NY, program that encourages school students to "invent with their hands what their minds dream up, and submit ideas for inventions they think would fill a need or improve existing machines or products," Canedo, a principal, is on loan to the U.S. Commerce Department as a consultant.

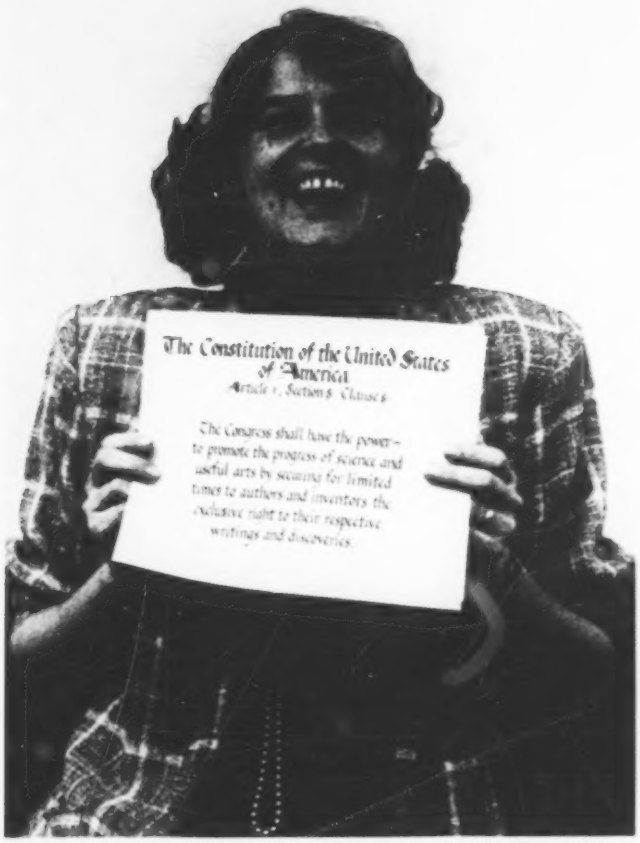
Visiting Francis Elder's Thinking Opportunities for Kids (TOK) class at Georgian Forest ES, she came to class with a suitcase of information, slides, and inventions. Committed to helping the U.S. Patent and Trademark Commission head off the flood of invention rights being awarded to foreign competitors of the United States, Canedo is a one-woman early intervention program.

"Thomas Edison," she explained, "knew at least 1,000 things that didn't work, and he was thrilled because it offered him 1,000 opportunities to create things." Canedo is in the business of offering children the same opportunities.

"To become a good thinker you have to use creative thinking that involves brainstorming, freewheeling or hitchhiking one idea upon another. You have to defer judgment. Nothing is wrong. Everything is right. Creativity requires postponement of criticism."

Canedo practices what she teaches. Each student was given a white paper plate. "How many different things can this paper plate become other than something to eat on at a picnic?" she challenged. The class was divided into five groups and given one minute to record their ideas. After polling each

(continued on page 2)


The Constitution of the United States of America
Article 1, Section 8, Clause 8
The Congress shall have the power—
to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Canedo explains that inventions are protected by the Constitution.

INVENTOR'S SPOTLIGHT

Canedo discusses 'weird and wacky' inventions from the past.

Students brainstorm ideas for using a paper plate.

Speaker invites students to invent

(continued from page 1)

group to eliminate repetition, Canedo reported that in one minute the class had created 42 brand new ideas for using a paper plate (as a mask, bank, hat, frisbee, watch, fan, flying saucer, a hubcap, tire, globe, sun dial, lampshade, bug swatter, etc.).

Explaining that, "Everything around you is an invention," Canedo defined property, intellectual property, patents, trade marks and service marks and explained how they can be protected.

Using a series of slides she shared "weird and wacky inventions" that never made it to the big-time, such as a bustle-stool hidden in the voluminous folds of a 1900's dress that allowed the wearer to constantly have a chair at her disposal; a 1920's device for shaping the upper lip into the classic bow shape popular then; a portable sleeping cushion that enabled the user to sleep in a sitting position by supporting the head on a wooden pole.

The slide show included more recent inventions by the students at her school such as the "slipper-lights," bedroom slippers with flashlights in the toes for walking in the dark. Canedo had examples of student inventions with her: shoe-mops that made one student's sweeping chore more manageable and a shirt with a zipper at the bottom of the pocket to eliminate digging for an object from the top.

Canedo is part of a national effort whose aim is to rekindle American innovation at a stage where it burns most brightly—childhood. This national effort has seen the development of two national invention competitions for children, The Weekly Reader National Invention Contest and Invent America. The Patent and Trademark office has coordinated three national conferences and has participated in dozens of others, allowing parents, teachers, school administrators and educational experts to exchange ideas on promoting problem-solving and analytical skills among kindergarten through eighth graders. This year, the third national conference will be held June 2-4 in Dallas, Texas.

Canedo also serves as a key participant in a new educational/industrial/governmental umbrella known as "Project XL," an effort "dedicated to the development and proliferation of programs that teach children to think analytically and creatively."

For more information about invention competitions, demonstrations and programs call Judy Messitte at the Resource Bank, 762-6192.

The art and science of architecture

When it was over, 34 students at Damascus High School had heard the good, the bad and the ugly about careers in architecture.

Referring to architects as the "authors of the built environment," Lois Thibault, director of education programs for the American Institute of Architects, led her audience on a whirlwind tour of career possibilities in the field. "You can work in small or large firms, in housing, commercial, health care, recreation, landscape, museum, stage and costume or product design. Employers can include private and public agencies, colleges and universities, real estate developers, construction companies, digests and newspapers."

Salaries for recent architect school graduates begin around $20,000 a year and can increase well into the $30's after completion of an internship. The average annual salary for principals of large firms is often over $100,000 a year.

The road to professional licensure as an architect is rigorous according to Thibault. "You must have a first professional degree from an accredited school of architecture (there are 93 in the country). After earning a professional degree you must serve a three year internship to get practical training. Finally, to be licensed by the state you must pass a four day-long architecture registration exam.

Explaining that, "Many architects can't think or speak without a pencil in hand," Thibault added, "You don't have to be able to draw well to be an architect. You do have to be able to communicate in written and spoken word and through drawings. You have to have a problem-solving nature, and should be good in math through calculus." She recommended taking a broad range of courses in high school and college, including history, English, art (sketching), business and computer courses.

Lee Waldrep, former national vice-president of the American Institute of Architecture Students, spoke about his experiences as an architecture student and the research he is doing for a book reviewing schools of architecture in the United States. Interested in the field as a result of a drafting course in junior high school, he explained that there are three ingredients necessary to become an architect: dedication ("It's not a 9 to 5 kind of job."), talent ("You need to be able to draw and be creative.") and the ability to problem-solve.

Getting down to the ugly side of career preparation, he warned that, "The workload is excessive and time management skills are critical. Architecture students sometimes pull several all-nighters in a row doing final projects that must be presented to a jury of professors and visiting architects. Public criticism is unique to the profession. Your design is critiqued in front of your peers. Many students take it personally and find the public evaluation difficult to handle, but that's the method of learning if you are an architecture student."

The good side of preparing to become an architect, according to Waldrep, involves camaraderie with classmates, close and informal relationships with professors, and the personal space each student is given in the school building, including a drafting table and supply cabinet.

Both speakers agreed that job satisfaction is high among architects. A survey indicated that 82 percent of those questioned said that they would still choose to become architects. "To be able to walk through a space you've designed – that's a wonderful feeling!" Thibault explained.

The Resource Bank is no longer accepting requests for this school year. Teachers are encouraged to to visit the Bank at Julius West MS, Room 11, during the summer and browse through resources available next year in science and mathematics. Call Judy Messitte, Bank Coordinator at 762-6192.

Lois Thibault (standing) and Lee Waldrep (seated front) explain how to become an architect to students at Damascus HS.

Highland View student gets a close look at how a magnet reacts above a superconductor cooled with liquid nitrogen.

Class observes the unexpected 'levitation' of a magnet as Van Degrift demonstrates.

Liquid nitrogen 'catches' dust.

National Bureau of Standards physicist catches cold

Some like it hot. Craig Van Degrift likes it cold, very cold. As a boy living in southern California, he used to put wet dish rags into the freezer to see how they froze. "In our climate, I couldn't see it any other way." Now involved in cryogenic research at the National Bureau of Standards, Van Degrift put on a "cool" show for Highland View's 4th graders.

Star of the show was a quarter-sized ceramic disk. "This is the first time I have been able to bring a superconductor to a lecture," Van Degrift explained. Setting it on a styrofoam cup and cooling it with liquid nitrogen, he placed a small magnet above the frozen disk where it hovered magically in the air. "In this demonstration, the supercooled ceramic disk acts like an imaginary opposing magnet, repelling the one I placed above it." Van Degrift explained that by using superconductors to create a powerful permanent electromagnet, entire trains can be made to levitate above tracks of ordinary metal.

Like a magician delighting in surprising his audience, Van Degrift performed other demonstrations involving low-temperature physics.

Proving that air can become a liquid, he dipped an inflated balloon into a can of liquid nitrogen. As the balloon shriveled, the air inside liquefied and sloshed at the bottom. At room temperature, the balloon reinflated within seconds and the liquid inside disappeared.

Responding to a question about how wet clothing hung outside in the winter can dry, Van Degrift explained that ice that forms on the clothes will turn directly to gas without melting when it's really cold outside. "This same phenomenon is what allows us to have freeze-dried foods."

Filling a coffee can with liquid nitrogen, Van Degrift noted that, "Rubber doesn't work well when it's cold." He dipped a flexible piece of rubber tubing into a can of liquid nitrogen. The frozen coil that emerged shattered like glass when struck. Reflecting on the Challenger disaster that resulted when the rubber rings linking rocket stages lost their flexibility due to a sudden drop in temperature, Van Degrift noted that decisions involving science often are made by non-scientists. "Even if you're not working in the field, you should understand and respect scientific measurements."

In a final demonstration, Van Degrift led his audience into a hallway and to the astonishment of teachers and students alike, he spilled the liquid nitrogen onto the floor and carpet where it splattered, hissed, sizzled and spun into balls of dark dust as it skittered down the corridor and across the carpet. "For some unknown reason, liquid nitrogen attracts dust," he explained.

Obviously enjoying his work, Van Degrift noted that since society is letting him "have a lot of fun" doing research, he feels that volunteering for the Resource Bank is an obligation and a way of saying thanks. ∷

Holborow wins resource award

A taste of anything good will only whet the appetite. Since business law covers an enormous range of topics, Virginia Holborow, business law teacher at Wootton HS, has presented her classes with a smorgasbord of experts in the field.

The Montgomery Education Connection selected Holborow as "Teacher of the Month," based upon the number and variety of speakers she has invited to make presentations to her classes.

A review of topics presented this year reads like a who's who and what's what in business law. Search and seizures, real estate law, the State's Attorney, patent law, tort law, police work, comptroller of the Medical Service Corps, auto insurance, entrepreneurial internships, the law and the consumer, how candidates are financed, child abuse, business law and the school system, white collar crimes, malpractice, the Nuclear Regulatory Commission, real estate, real estate contracts and juvenile law are only some of the topics covered by speakers this year.

In addition to inviting the community in, Holborow has taken her classes out into the world of business law. Field trips to the Supreme Court, the Federal Bureau of Investigation and the District Court have excited student interest. "We were lucky this year," Holborow admits. "We got to see a case presented before the Supreme Court when we visited."

She spoke enthusiastically about one presenter, a vice president of First American Bank, who showed her classes how commercials for the bank are made. "It was fantastic to see!" noted Holborow.

As a former colleague of State's Attorney Andrew Sonner, who taught with her at Walter Johnson HS while he was attending law school at night, she has invited him to address her classes twice a year.

Holborow has taught business courses at Wootton for 16 years. Before that she taught subjects as different as English, science and physical education in places as far apart as Florida and Newfoundland. ∷

Virginia Holborow is Teacher of the Month.

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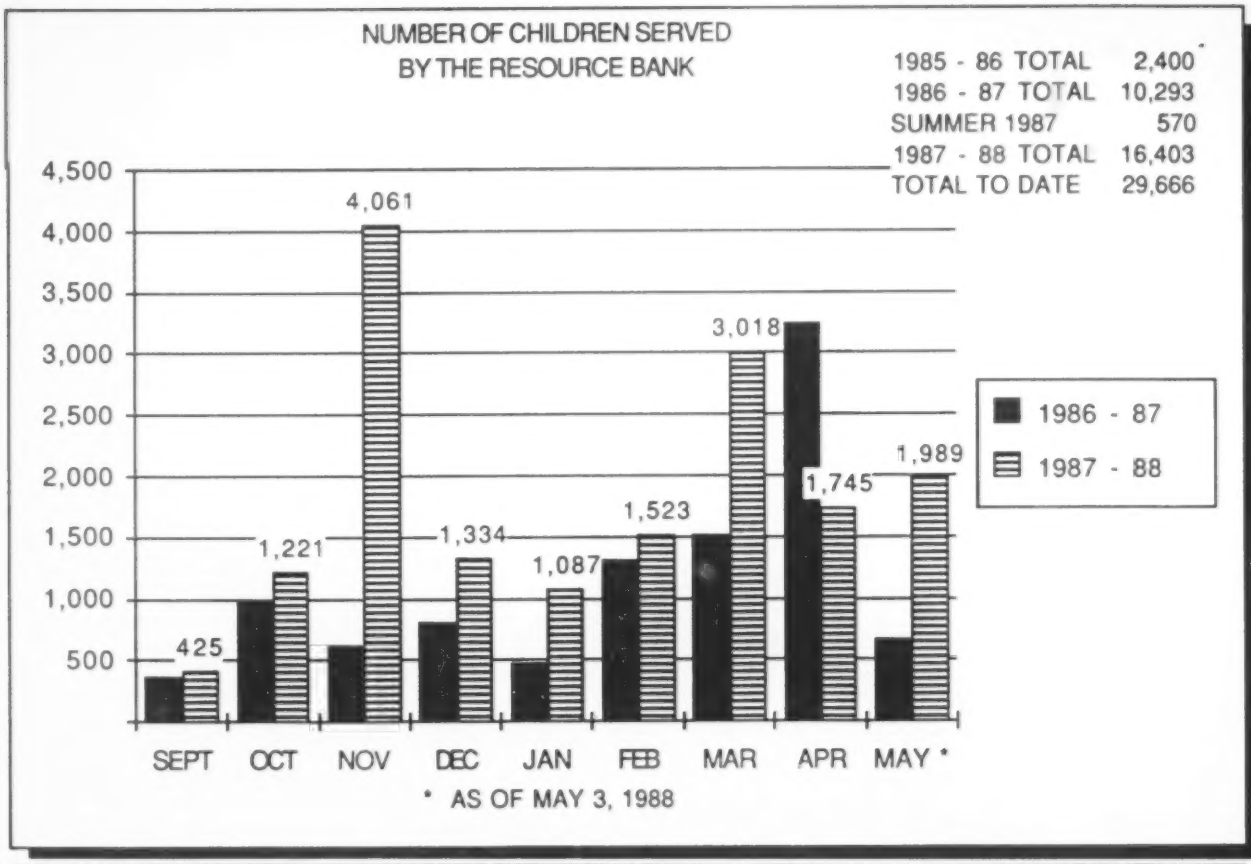
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BY THE RESOURCE BANK
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1986 - 87 TOTAL 10,293
SUMMER 1987 570
1987 - 88 TOTAL 16,403
TOTAL TO DATE 29,666
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3,500
3,000
2,500
2,000
1,500
1,000
500
425
1,221
4,061
1,334
1,087
1,523
3,018
1,745
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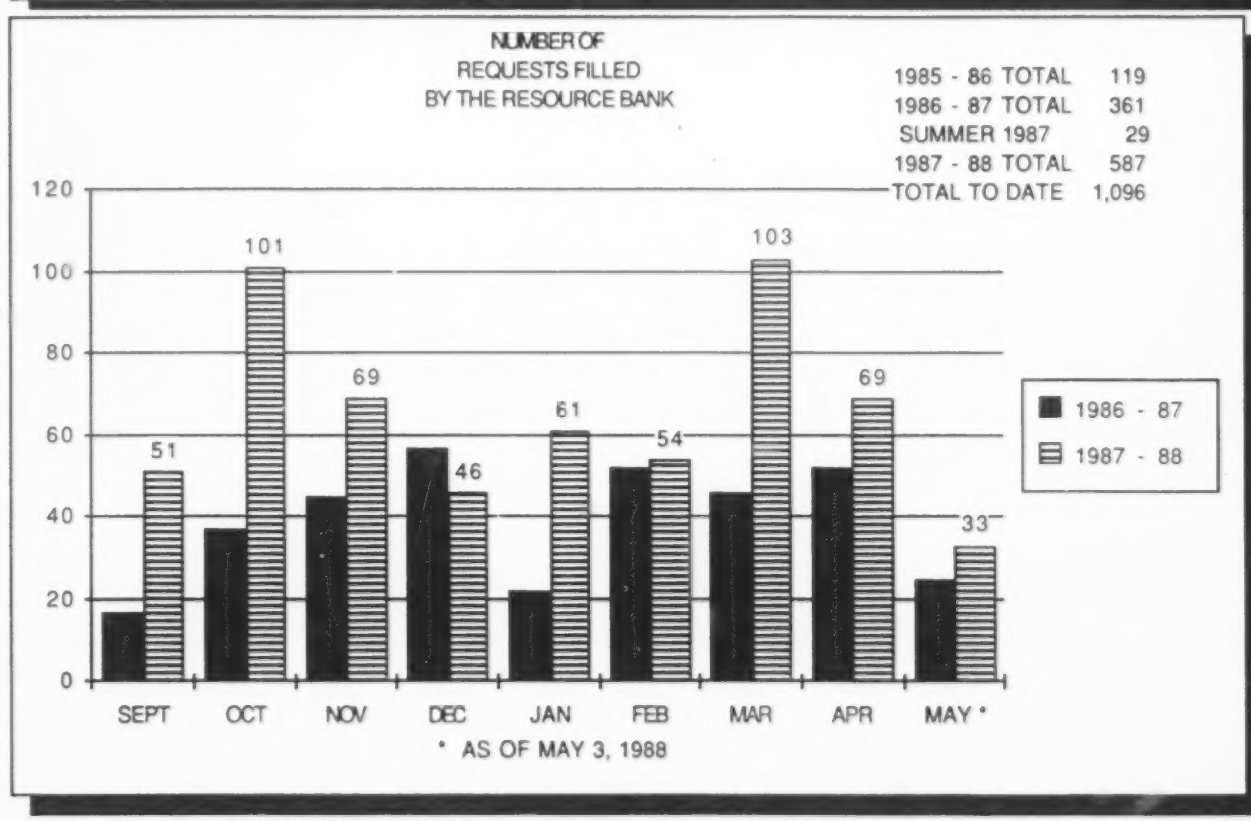
MAY *
* AS OF MAY 3, 1988


NUMBER OF
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BY THE RESOURCE BANK
1985 - 86 TOTAL 119
1986 - 87 TOTAL 361
SUMMER 1987 29
1987 - 88 TOTAL 587
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100
80
60
40
20
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51
101
69
46
61
54
103
69
33
1986 - 87
1987 - 88
SEPT
OCT
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DEC
JAN
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MAY *
* AS OF MAY 3, 1988

Businesses and schools connect

The romance between the business community and the Montgomery County Public Schools has gone beyond courtship and into marriage.

In a partnership that is just completing its fourth year, the Montgomery Education Connection, a non-profit foundation of businesspeople dedicated to facilitating a sharing of expertise and resources with MCPS can boast of several remarkable milestones.

The first project undertaken by the Connection was the formation of a data base of volunteer resources in science and mathematics that could be made available to teachers upon phoned request. Since its inception two years ago, the Connection Resource Bank has filled more than 900 teacher requests for speakers, mentors and field trips, offering direct services to more than 29,000 MCPS students. Presently the data base includes more than 1,500 resources.

Of Interest, the monthly newsletter for MCPS teachers highlighting many of the resources available through the Bank, has been funded through a two-year Excellence in Education award from the U.S. Department of Education and funds from the Montgomery Education Connection. When the grant project ends in September, the Connection will become the sole sponsor of the newsletter with continued support from MCPS. *Of Interest*, will become a major part of the business community's commitment to sharing its vast resources.

Other projects developed and supported by the Connection include the following programs.

The summer Business Institute for Educators was begun in 1983 and originally sponsored by IBM. Supported by the Connection and Washington metropolitan area businesses and school systems, its mission is to provide professional and personal development workshops. In areas such as team building, stress management, personal planning, managing change and the classroom of the future, the Business Institute offers teachers the opportunity to attend eight days of seminars and workshops that had been developed by private corporations for their staff members .

State in-service credit is available or graduate credit if a participant wishes to pay the tuition fee. Last summer, more than 40 companies and trainers provided seminars, workshops or funding for more than 150 educators from the Washington metropolitan area. The Business Institute is now an independent non-profit organization continuing to offer teachers unique opportunities for growth.

Who can help students understand the personal qualities needed in the workplace better than employers? The Connection has developed the STARS project (Students Achieving Real Success) that links the business community with two high schools, Montgomery Blair and Richard Montgomery. It was begun as pilot project to help students, vocational and college bound, learn the etiquette and personal requirements of the workplace. Business leaders and school staff held panel discussions about their mutual need to act as role models and prepare students to enter the marketplace. The Connection hosted teachers for lunch during an in-service day, provided the funds for four showings of the multimedia production "Paradise," and supported job and career fairs at the schools, offering students the opportunity to meet prospective employers and practice what they had been taught. The fairs included seminars on such topics as resume writing, job interviewing and looking for work.

Following the student one step beyond employment, the Connection has initiated the Student Investment Project (SIP) to help students learn to handle disposable income. New this year, SIP offered one and one-half days of in-service training to all MCPS economics teachers on how to make use of the stock market in teaching economics. An all-day session in November was particularly timely in light of the October crash. Funds also were made available to the teachers for teams of students to take part in The Stock Market Game, a national program developed and partly funded by the Securities Industry Association.

In order to attract the best and brightest teachers to Montgomery County, the Connection has established a job bank to help new teachers under contract who need employment during the summer before starting their work with MCPS. During the past two summers the job bank has provided employment for nearly 40 such teachers.

As in any good marriage, there should be celebrations. By establishing the "Teacher of the Month Award," the Connection has recognized the creativity of teachers who have done an outstanding job reaching into the business and scientific communities for resources. Selected teachers receive an honorarium of $100 and a day of administrative leave to visit a business resource.

The partnership is thriving. The family of projects is growing. Both MCPS and the Montgomery Education Connection are working together to offer

(continued on page 8)

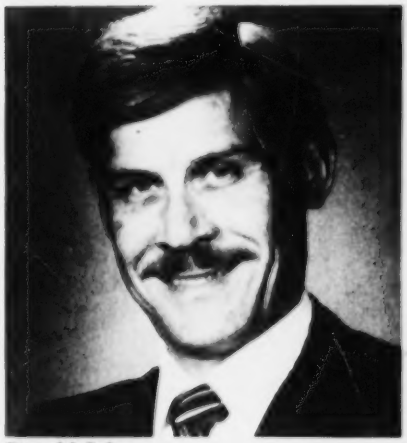
NUMBER OF CHILDREN SERVED

	1986 - 87	1987 - 88	% INCREASE
SEPT	377	425	12.7
OCT	1,009	1,221	21.0
NOV	627	4,061	547.7
DEC	808	1,334	65.1
JAN	483	1,087	125.1
FEB	1,322	1,523	15.2
MAR	1,520	3,018	98.6
APR	3,261	1,745	-46.5
MAY *	667	1,989	
JUNE	219		
TOTALS	10,293	16,403	
* AS OF MAY 3, 1988			

NUMBER OF REQUESTS FILLED

	1986 - 87	1987 - 88	% INCREASE
SEPT	17	51	200.0
OCT	37	101	173.0
NOV	45	69	53.3
DEC	57	46	-19.3
JAN	22	61	177.3
FEB	52	54	3.8
MAR	46	103	123.9
APR	52	69	32.7
MAY *	25	33	
JUNE	8		
TOTALS	361	587	
* AS OF MAY 3, 1988			

William Jones



Donald Johnson

Connection leaders

(continued from page 7)

students a richer understanding of their world.

Connection leaders bring a wealth of experience to their jobs, a fact that is very evident with the two men at the helm this year and next.

Current president William H. Jones typifies the community-minded corporate executive with a company that has a long history of collaborative activities with MCPS. Jones, vice president for corporate affairs for Potomac Electric Power Company, brings extensive knowledge of the business community to the Connection as a result of his current position and more than 15 years as a business editor and reporter for the *Washington Post*.

President-elect Donald R. Johnson is director of the National Measurement Laboratory at the National Bureau of Standards (NBS) and is currently on special assignment heading an NBS task force to implement new technology competitiveness activities related to pending legislation. Johnson brings a broad government perspective to the Connection as well as many years of experience in the partnership between MCPS and NBS to hold the annual Montgomery County Science Fair. He has been responsible for bringing many science resources to the schools.

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Chase Manhattan Financial Services
C & P Telephone Company
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Potomac Investment Assoc.
Sentinel Newspapers
Shulman, Rogers, Gandal,
Pordy & Ecker, PA
Sovran Bank/Maryland
TeleSec
Tracor Applied Sciences
University of Maryland
Vitro Corp.

"The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education and no official endorsement by the Department of Education shall be inferred."

...Of Interest

Harry Pitt, superintendent
Steven Dickoff, principal
Sally Keeler, project director
Judith Kramer, editor
William Mills, photographer

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